GENERAL DYNAMICS

NEWS

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(OFF-SITE)

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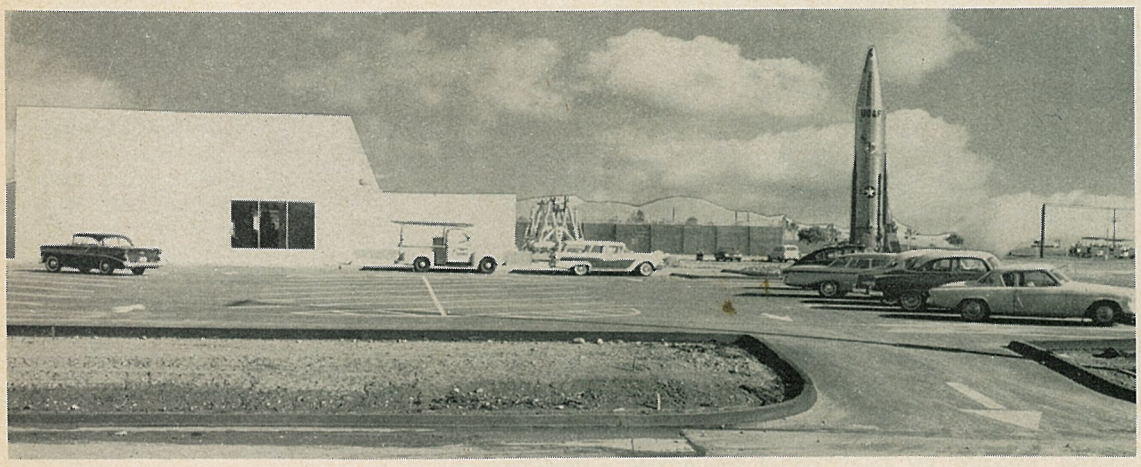

HOW IT'LL LOOK—By trick of photography, Atlas missile was "erected" in Astro Recreation area to show how real thing will look when missile actually is in place.

Atlas Missile To Be Erected As Recreation Area Display

GD/Astro Management Club has announced plans to sponsor erection of an Atlas missile in ARA Recreation Area for permanent display.

Tentative approval of plans has been obtained, and volunteers last week began readying the missile.

The Atlas to be used is an early model of the ICBM which spent its useful life undergoing batteries of engineering tests.

Destined for the "scrap heap," it had been donated by the Air Force to ARA. After erection in the Recreation Area, it will serve as a monument to GD/Astro's pioneering efforts in space and missile fields.

A. M. Dale, Dept. 536-7, is chairman of the club's display missile committee, which includes Don Crayton, R. C. Emerson, N. E. Lara, Al LeBlanc, R. A. Raffesberger, W. P. Shine and Marty Stutz.

Many other club members are assisting, and Ray Mendoza aids J. R. Mitchell, chief of employee services, in coordinating for ARA.

First steps in the project were taken last week. This included placing the missile "in stretch" near GD/Astro's silo mockup and erecting a supporting cradle under.

Subsequently, the Atlas will be lined with a plywood-plastic inner shell to provide rigidity. It will then be placed on a concrete slab southwest of ARA Clubhouse.

Volunteer work parties will accomplish as much of the project as possible. Cost of necessary contract labor and materials will be borne by ARA.

Weekend Schedule For Salvage Set

Salvage yards at GD/Convair and GD/Astro plants will be open for employee sales on the following schedule:

GD/Astro—Saturdays, Jan. 27, Feb. 10.

GD/Convair — Saturdays, Jan. 20, Feb. 3.

Patterson Fills New Advanced Product Posts

Four new executive appointments at General Dynamics/Astronautics have been announced by W. H. Patterson, vice president—advanced product planning.

Named are Jack D. Phelan as director of advanced product planning for electronics and space research; Frank P. Stoklas as manager—advanced products for electronics and space research; Frank A. Zylius as manager—advanced products for ballistic launch vehicles and manned space systems; and Donald W. Srull as chief of marketing analysis.

A native of Sedalia, Mo., and graduate of the University of Minnesota, Phelan has served as vice president of marketing for the Budd Company—Electronics Division. Previously, he worked for such firms as ITT Federal Labs, Collins Radio, Nelson Electric and Airform Manufacturing where he held positions in engineering and sales organizations.

Stoklas is a native of Dodge, Neb., and a graduate of the University of New Mexico. He is a transfer from GD/Electronics at Rochester where he was systems program manager. Previously he worked six years for RCA at Patrick AFB, Fla., as a systems engineer. Prior work included time

(Continued on Page 2)

Bldg. 33 Move Involves 1,200

More "elbow room" for General Dynamics/Astronautics burgeoning population at Plant 71 became available with occupancy last month of the newly-completed 171,000-sq.-ft. addition to Bldg. 33.

More than 1,200 employees, primarily in engineering departments, have already moved into the new structure or will do so in the near future, while several hundred others were involved in moves resulting directly from the availability of new working space.

A mass exodus from Bldg. 4 involved personnel from several engineering departments who took over new office or laboratory areas in Bldg. 33.

Moving, too, was educational services (Dept. 130-3) which now occupies seven classrooms in the new building, in addition to office space. The department's classrooms in Bldg. 17 continue in use.

From the fourth and fifth floors of Bldg. 3 came nine engineering groups to occupy space in Bldg. 33, and Bldg. 23 will lose trajectory lab to the new structure.

In the space-gaining doubleplay, vacated areas in Bldg. 4 became available for expanding departments in Bldg. 26, many of which have already moved into new quarters.

These included two test engineering sections and certain communication (Dept. 120) groups, all now located in Bldg. 4.

A contracts group and Centaur unit left Bldg. 26 for Bldg. 1; two Dept. 522 sections and systems design (Dept. 531) departed for Bldg. 3. Electrical design (Dept. 545) moved from Bldg. 26 to Bldg. 33.

Within Bldg. 26, moving day for several departments will mean a simple trek upstairs to the second floor. Following this plan are support logistics (Dept. 335), support documentation (Dept. 337), support planning (Dept. 305), Golden Ram (Dept. 250), support engineering (Dept. 321), field service engineering (Dept. 324), and support publications (Dept. 322).

Some 40 data processing programmers (Dept. 170) have shifted temporarily to Bldg. 19 opposite GD/Convair Plant 1.

Major factor in occupancy of the Bldg. 33 addition is consolidation of many laboratory facilities in a 45,000-sq.-ft. area along the building's east wall.

Construction of the addition was begun in July. Like the original structure, it is of rigid steel frame construction with "tilt-up" concrete walls, steel roof deck and built-up roof. It includes a 50 by 50-ft. utility core housing two 262-ton air conditioning units, electrical substations and rest rooms.

Centaur Space Device Under Pt. Loma Test

Guiding Centaur through unpowered "coast" periods in space will be a control system tested extensively by General Dynamics/Astronautics on a unique device that utilizes cushions of air to create frictionless conditions.

Called a space vehicle simulator, the test device was designed and built by Astronautics. It has been in use at Point Loma for some time.

After separation from an Atlas "D" missile which will launch it into space, Centaur will enter the "coast phase" in which its powerful hydrogen engines are off and it moves only through momentum. Tests involve the control system's work during this period.

The test device in use weighs about 6,000 pounds. A 14-foot column rests on the floor with a cradle-like upper section. Into this cradle fits a 30-inch sphere of specially-processed steel. A shaft penetrates the center. Onto each end of the shaft is attached a 25-foot boom of skeletal construction. Equipment being tested is installed on one of the two booms.

Nitrogen gas forced through the base column causes the sphere to separate from the cradle a fraction of an inch. Created is a frictionless "air bearing" allowing the rig to rotate freely in

(Continued on Page 2)

SCHILLING-BOUND—Members of RPIE teams line stairs of GD/Astro silo mockup prior to departure for Schilling AFB. Below is project coordination group of R. W. Shaffer, Al Mair, W. R. Gordon, C. A. Judd and W. H. Berry.

Teams Checking Schilling Sites

Early this month, four special General Dynamics / Astronautics teams left San Diego for Atlas ICBM base activation operations in Kansas.

The four-man units, called Real Property Installed Equipment (RPIE) Configuration Control teams, will verify engineering data by comparing it with equipment installed at Schilling AFB launch complexes.

Because of the high priority assigned to activating Atlas bases, a variety of agencies—Army Corps of Engineers, associate and sub-contractors as well as GD/Astronautics—poured materials and equipment into their contruction.

As operational status approaches, a review by the special GD/Astro teams will lead to preparation of a coordinated engineering release record covering all equipment installed at each facility.

This record will be maintained up-to-date using GD/Astro's data

(Continued on Page 2)

Steps Taken to Organize Disaster Control; Team and Training Program Considered

General Dynamics/Astronautics this month is taking further steps toward building up its Disaster Control and Civil Defense program, according to W. E. Bowman, manager of industrial security.

Among the first moves was appointment of A. M. Young, former guard officer at Astro, to the post of disaster control coordinator.

Over the past week special communiques have gone out to more than 250 present Astro employees who at one time or another during their careers with General Dynamics have received formal training in disaster control. Also, notices have gone to Astro employees previously designated to work in this field.

Primarily, these communiques will determine if the individual is interested in taking part in disas-

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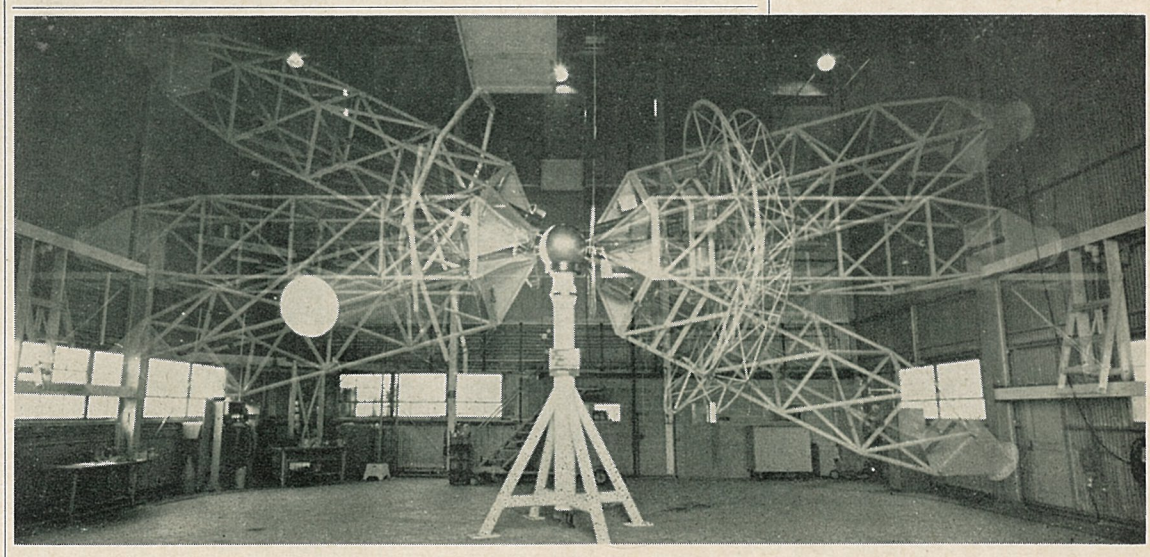

FREE-WHEELING—Multiple exposure photo shows Centaur space vehicle simulator in action, duplicating flight conditions.

Log Book Entries

Promotions

MAIN PLANT

Promotions to or within supervision effective Dec. 18.

Dept. 105-0, Advanced Product Planning: To manager of marketing research and analysis, P. Osborn.

Dept. 120-0, Communication: To asst. to director of communication, E. C. Keefer. To manager of motion pictures, John Hynd.

Dept. 130-6, Industrial Relations: To interviewer, William Okey.

Dept. 141-2, Quality Control: To process control supervisor, G. H. Schwab. To process control asst. supervisor, D. R. Miller.

Dept. 151-1, Management Systems: To change administration supervisor, M. R. Clark.

Dept. 152-0, Program Planning and Control: To change administration supervisor, J. L. Milliorn.

Dept. 155-0, Estimating: To clerical supervisor, A. C. Schwartz.

Dept. 175-0, PACE Services: To PACE program supervisor, J. B. Acton.

Dept. 191-0, General Accounting: To accounting supervisor, G. W. Robertson. To accounting asst. supervisor, W. E. Potts.

Dept. 250-5, Transportation: To transportation foreman, J. C. Rice. To transportation asst. foreman, W. C. Stubbs.

Dept. 322, Support Publications: To support publications asst. supervisor, D. J. Hallman, L. B. Settle.

Dept. 324-5, Field Engineering: To field engineering asst. supervisor, M. A. Hein, J. T. Ready Jr.

Dept. 333-2, Off-Site Logistics: To receiving and stores asst. foreman, G. L. Rafferty.

Dept. 351-2, Field Modification: To manufacturing control asst. supervisor, P. F. Sepe.

Promotions to or within supervision effective Jan. 1.

Dept. 101-7, Data Processing: To asst. group engineer, R. H. Bowen, C. H. Gutzler.

Dept. 105-0, Advanced Product Planning: To chief of marketing analysis, D. W. Srull.

Dept. 110-0, Contracts: To contract administrator, J. H. Edwards.

Dept. 141-0, Quality Control: To chief of off-site quality control, H. L. Anderson.

Dept. 510-4, Engineering Management: To asst. project engineer, L. G. Egan Jr., J. C. M. Elizalde, E. E. Lindgren, R. R. Tillett, A. J. Von Der Wische.

Dept. 511-1, Engineering Management: To asst. project engineer, R. Benzwi, J. E. Lauen, C. C. Lingenfelder.

Dept. 773-0, Missile Checkout and Acceptance: To foreman, W. J. Giesenschlag, D. K. Slingsby. To asst. foreman, F. I. Gompf, R. H. Schmidt.

AFMTC

Promotions to or within supervision effective Jan. 1.

Dept. 571, GD/Astronautics Operations: To asst. supervisor, B. J. Hendershot, C. R. Hodsden.

ALTUS AFB

Promotions to or within supervision effective Dec. 18.

Dept. 617, GD/Astronautics Operations: To chief of scheduling and analysis-base, H. W. Wagner. To launch complex supervisor, B. G. Longino, J. W. Moss. To launch complex asst. supervisor, W. G. Carlton, S. G. Hughes, C. A. Roberts. To asst. foreman, J. W. Bailey, W. K. Cagle, T. W. Clardy, L. T. Gilliam, R. O. Hanson, E. L. Harris, R. D. Haupert, J. C. Hazlett, F. H. Long, O. E. Lykins, R. R. Moore, L. L. Rudy, B. T. Whatley. To task control supervisor-base, W. E. Horner. To activation engineering asst. supervisor, M. E. Thistle Jr., R. Loraine.

Promotion to or within supervision effective Jan. 1.

To chief of quality control-base, F. E. Hinton Jr.

DYESS AFB

Promotions to or within supervision effective Dec. 18.

Dept. 618, GD/Astronautics Operations: To launch complex supervisor, C. E. Aldredge, A. M. Fader, R. R. Mills. To launch complex asst. supervisor, R. A. Wroolie. To inspection supervisor, R. E. Bowers. To inspection asst. supervisor, P. S. Byers, D. E. Graham, T. A. Langford, F. W. Stewart. To subcontractor coordination supervisor-base, W. J. McTigue. To asst. foreman, W. A. Clark, E. L. Crawford, J. P. Golden, D. A. Jerome, J. J. Owens Jr., T. V. Starcher, J. N. Wasson.

Promotions to or within supervision effective Jan. 1.

To production control asst. foreman-base, C. L. Crockett. To asst. foreman, S. R. Merryfield.

LINCOLN AFB

Promotions to or within supervision effective Dec. 18.

Dept. 616, GD/Astronautics Operations: To inspection supervisor, J. N. Trail. To inspection asst. supervisor, T. J. Bruger, J. K. Pound, D. E. Wright. To launch complex asst. supervisor, E. S. Day, H. Morgan Jr. To activation engineering asst. supervisor, F. R. Train.

PLATTSBURGH AFB

Promotions to or within supervision effective Dec. 18.

Dept. 620, GD/Astronautics Operations: To plant engineering asst. supervisor-base, A. S. Contois. To production control asst. foreman-base, E. A. Wendler Jr.

Promotions to or within supervision effective Jan. 1.

To chief of production control, C. H. Fontaine. To launch complex supervisor, J. W. Richardson. To timekeeping asst. supervisor, D. Pearce.

SCHILLING AFB

Promotions to or within supervision effective Dec. 18.

Dept. 615, GD/Astronautics Operations: To inspection supervisor, F. A. Falls. To chief of administrative services-base, G. P. Delp. To activation engineering asst. supervisor-base, M. G. Cohn. To asst. foreman, R. E. Gutzwiller, R. W. Decker.

Promotion to or within supervision effective Jan. 1.

To asst. foreman, C. T. Griffith.

SYCAMORE

Promotion to or within supervision effective Jan. 1.

Dept. 573-3, GD/Astronautics Operations: To asst. foreman, D. E. McCue.

VANDENBERG AFB

Promotions to or within supervision effective Dec. 18.

Dept. 576, GD/Astronautics Operations: To group engineer, J. H. Rusk Jr. To asst. foreman, E. Collins.

Promotion to or within supervision effective Jan. 1.

To inspection asst. supervisor, J. B. Bennett.

WALKER AFB

Promotions to or within supervision effective Dec. 18.

Dept. 619, GD/Astronautics Operations: To asst. supervisor, F. B. Thompson. To receiving and stores asst. foreman, F. L. Henrietta.

Promotions to or within supervision effective Jan. 1.

To launch complex supervisor, R. E. Gumtz, D. E. Hoegh, R. T. LeFrois. To launch complex asst. supervisor, W. A. Wigington. To inspection asst. supervisor, W. M. Booher, G. W. Davis, R. D. Markham, N. P. Snell. To asst. foreman, H. C. Scroggins.

Service Emblems

MAIN PLANT

Service emblems due during the period Jan. 1 through Jan. 15.

Twenty-five-year: Dept. 541-7, J. A. Lehman.

Twenty-year: Dept. 151-3, T. A. Bridges; Dept. 170-0, T. J. Moffett; Dept. 351-1, E. E. Homan; Dept. 453-0, G. L. Olson; Dept. 732-0, A. A. Gomez.

Fifteen-year: Dept. 130-1, M. F. Lear; Dept. 322-8, K. M. Peterson; Dept. 351-3, J. J. Graham; Dept. 545-7, H. W. Nichtern; Dept. 604-0, W. H. Mariott; Dept. 732-0, J. T. Epperly; Dept. 745-0, P. T. Gardner; Dept. 759-0, R. L. Hawkins Jr.

Ten-year: Dept. 130, R. T. Castrey, H. C. Guyne, Dale Mederis; Dept. 141-3, H. C. Cox; Dept. 191-0, Verna S. Hathaway; Dept. 193-3, Bernice C. Jones; Dept. 250, D. L. Herzer, Laverne Moore, Herbert Whitmore; Dept. 305-0, L. A. Chambers, D. N. VanEpps.

Dept. 333-3, Dorothy J. Page; Dept. 351-3, W. R. Poulton; Dept. 480-0, F. L. Erwin; Dept. 522-4, J. A. Moore; Dept. 547-3, W. F. Brassell; Dept. 591-5, B. W. Bostad; Dept. 732-0, S. F. Martin; Dept. 820-0, T. B. Carter Sr.; Dept. 833-1, M. A. Shamhart.

DYESS AFB

Fifteen-year: Dept. 618, Joseph Boyd, C. C. Price.

LINCOLN AFB

Twenty-year: Dept. 616-1, F. D. Weismantel.

SCHILLING AFB

Ten-year: Dept. 615-4, R. J. Pixley.

SYCAMORE

Fifteen-year: Dept. 573-3, H. C. Hetrick.

Ten-year: Dept. 573-4, R. N. Dunkel.

VANDENBERG AFB

Fifteen-year: Dept. 576-3, J. W. Boorom.

Ten-year: Dept. 576-3, W. T. Mitchell.

WARREN AFB

Twenty-year: Dept. 611-0, S. R. Stager Jr.

Personals

MAIN PLANT

We would like to thank our many Astronautics friends for their comforting acts during the recent loss to our family. Your kind expressions of sympathy are gratefully acknowledged and deeply appreciated.

Eric Callard, Dept. 141-1
Don Callard, Dept. 144-2
John Callard, Dept. 144-2.

Births

MAIN PLANT

DUVALL—Son, Kevin Layne, 7 lbs. 13 oz., born Nov. 27 to Mr. and Mrs. C. W. Duvall, Dept. 143-3.

KOCH—Twin sons: Shawn Albert, 6 lbs. 10½ oz., and David Allmers, 7 lbs. 5 oz., born Nov. 21 to Mr. and Mrs. A. A. Koch, Dept. 597-1.

ROBERTS—Son, Jonathan Edward, 8 lbs. 6 oz., born Dec. 15 to Mr. and Mrs. D. E. Roberts, Dept. 545-6.

SHELDON—Son, Shaun Lance, 6 lbs. 6 oz., born Nov. 28 to Mr. and Mrs. Arthur Sheldon, Dept. 833-3.

TAYLOR—Son, Raymond Todd, 6 lbs. 7 oz., born Dec. 6 to Mr. and Mrs. Earnest Taylor, Dept. 250-4.

SCHILLING AFB

NYBERG—Daughter, Kimberly Kay, 7 lbs. 1½ oz., born Nov. 18 to Mr. and Mrs. K. E. Nyberg, Dept. 615-7.

PRIER—Daughter, Susan Marie, 8 lbs. 2 oz., born Dec. 31 to Mr. and Mrs. Gilbert Prier, Dept. 615-3.

WALKER AFB

CHRYSLER—Daughter, Linda Gail, 6 lbs. 12½ oz., born Dec. 1 to Mr. and Mrs. R. T. Chrysler, Dept. 619-3.

General Dynamics NEWS

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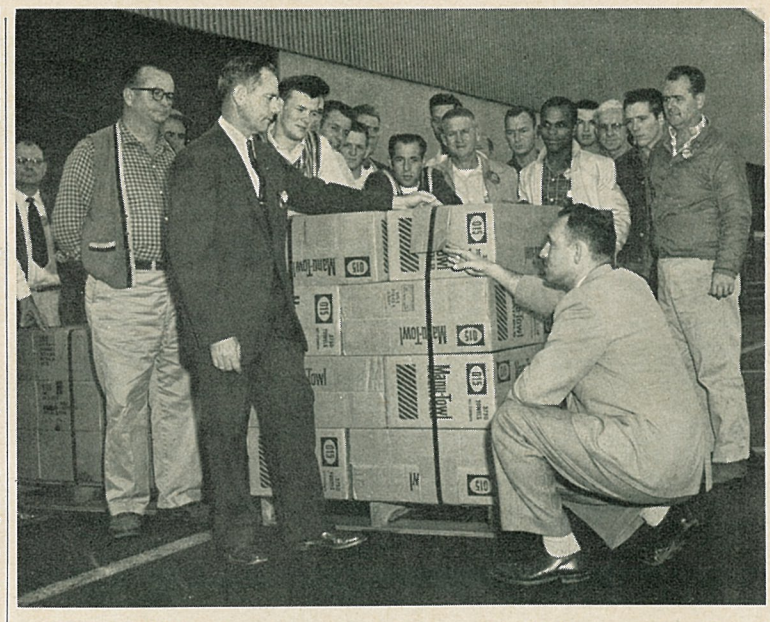

RIGHT WAY—Instructor Fred Sevey of GD/Astro educational services, discusses proper methods of pallet loading with W. F. Cogan, shipping assistant foreman, as members of materials handling class look on. Class aims at improving material handling techniques. Story on page 3.

Steps Taken to Organize Disaster Control; Team and Training Program Considered

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ter control activities at Astro and if he or she would like additional training, if necessary.

At the same time, 11 key Astro officials, members of the disaster control staff, have been asked to appoint representatives of their functions to begin concentrated efforts toward further implementation of the program at Astro.

Among plans for the organization are training sessions to indoctrinate participants, the acquisition of special equipment and facilities, and familiarization of all employees with the overall plan.

Young this week asked that employees not contacted who have had formal training in disaster control get in touch with him if they are interested in participating in the program in the near future. He may be reached at ext. 2644.

As a service to employees, the disaster control office is making available a special packet of material designated primarily for home use. It includes detailed instructions and suggestions for family training and familiarization with procedures to follow in emergencies and disasters.

Noteworthy are booklets dealing with radiation and explaining nuclear explosions, etc.

Beginning tomorrow (Jan. 18) and continuing for approximately one week booklets will be available to main plant employees leaving the plant. Material will be available at various gates on succeeding days. Special displays will be set up near the exit gate.

Sycamore Canyon and other off-site locations in the San Diego area will arrange to make packets available at their own discretion. No plans are being made at this time to service Plant 2, which falls under control of GD/Convair.

Teams Checking Schilling Sites

(Continued from Page 1)

processing facilities in San Diego. Total documentation will provide information to maintain and support the system during the balance of the installation and checkout period, and following acceptance of the Atlas facilities by the Air Force.

While the project is coordinated by configuration control section of GD/Astro change administration (Dept. 151-2), team members represent several departments.

Plant engineering (Dept. 250) members are charged with verification of equipment requiring maintenance; while product support (Dept. 337) representatives will up date master equipment lists for spare parts provisioning.

RPIE engineering data for preparation of the final engineering release record will be verified by team members from operations engineering (Dept. 531).

"This is a team effort all the way," said R. W. Shaffer, project administrator for configuration control. "After our job at Schilling AFB is done, teams will move to other 'F'-series bases, and later undertake similar work at 'E'-series Atlas installations."

Schedules call for some RPIE Configuration Control teams to work at Schilling AFB until late March. In mid-February, work at Lincoln AFB complexes will get under way.

Deaths

MAIN PLANT

CARLSEN—Cardwell F., Dept. 143-5. Died Dec. 16. Survived by wife, Beatrice, and two children.

MONGER—Mary Ellen, Dept. 101-6. Died Dec. 13. Survived by husband, Alva, and two sons.

RICKETTS—Gordon T., Dept. 758-0. Died Dec. 21. Survived by wife, Helen, and daughter, Ida.

SCHULTE—F. E., Dept. 143-7. Died Dec. 15. Survived by wife, Hazel, Dept. 220-3.

Altus ARA Cage Team Topples All-Stars

ALTUS AFB—An Astro-sponsored ARA basketball team here captured a pre-season contest and took third in a local cage tournament.

Paced by a 20-point barrage by J. W. Moore and 14 points by L. Martinez and an additional 10 points by S. Robertson, the team polished off the Altus All-Stars, 47-34. Victory brought an invitation to the annual Blair (Okla.) invitational tournament.

Seven teams took part. In the final game Blair won a 55-35 victory, although Martinez accounted for 10 Astro points, with S. Storie and R. Hickman adding eight each.

71-lb. Trout Winner In Cape Fish Contest

CAPE CANAVERAL — Astro anglers here turned in some fine catches in competition for ARA-sponsored awards.

Among them was a 71-lb., 4-oz. salt water trout caught by George Urban, husband of Astro's Julia Urban, and a 10-lb., 10-oz. fresh water bass landed by J. F. Carbone of Dept. 571-1.

Other winners included Leonard Kaminski, John Mazza, Joe Longo and John Kazza. Fishing equipment was presented winners by Commissioner C. W. Alsworth.

300 at Edwards Give $1,185 For Families

EDWARDS RS — Seven families, each with several children, were "adopted" at Christmas by GD/Astro employees here.

In lieu of exchanging gifts, employees contributed to a special fund. After $585 was raised, Astro Management Club here agreed to donate $2 for every $1 raised by employees above the $585. Eventually $1,185 was raised among only 300 employees.

Centaur Space Device Tested

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any direction, just as Centaur does during coast periods.

Power from ten small hydrogen peroxide engines on the test unit are switched on and off by the autopilot control system. In space these engines would make delicate attitude adjustments.

Engineers study the vehicle's response to the attitude control engines and control system under these simulated "operational" conditions.

Also mounted on the booms are two sun detectors and a sun tracker (position detector). These keep Centaur's aft end pointed to the sun during coast periods to prevent hydrogen fuel from overheating and returning to gas.

Astronautics technicians duplicate sunlight conditions through use of a five-foot anti-aircraft searchlight, with a smaller spotlight utilized to activate the sun tracker.

Centaur launch vehicles are being built by Astronautics for the National Aeronautics and Space Administration.

Patterson Names Four To New Exec Posts

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at the Motorola Research Laboratory, Radio Station KOB and the Eggert Radio Institute.

Zylius has been with Astronautics since 1957, most recently as an advanced project engineer and before that as a design specialist and a senior research engineer. Born in Chicago, he is a graduate of Columbia University. From 1951 until 1957 he was a senior project engineer at the Navy Training Devices Center, Pt. Washington, N.Y.

Srull holds BS and MA degrees from the University of Michigan and hails from Dearborn, Mich. He joined Convair in 1952 and worked as a research engineer, senior research engineer, design specialist and chief of operational analysis before joining Astro last month.

Data Processing Classes Offered

Data processing classes are open to interested General Dynamics people in both day and evening programs of San Diego City College's spring semester.

Evening courses include introduction to data processing, punch card machine and computer programming classes. The introductory course will be offered during the day.

Spring semester registration for new students begins today (Jan. 17) and continues through Jan. 29. Classes begin Jan. 30.

Information on City College courses is available at educational services offices at GD/Convair and GD/Astro.

Movie on Detecting Cancer Scheduled

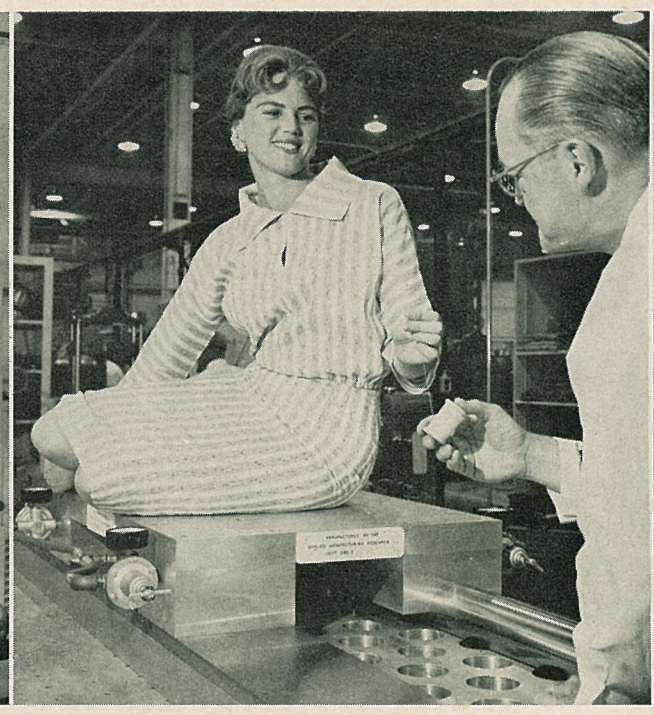
Special showings of cancer detection movies for women employees of General Dynamics/Astronautics have been arranged by educational services (Dept. 130-3) at the request of Dr. A. J. Bellanca, chief physician.

They will be shown to women only in Room 12, Bldg. 33 at 11:05 a.m. on Jan. 23, 25, 30 and Feb. 1; and at 12:05 p.m. on Feb. 6, 8, 13 and 15. Showings take about 25 minutes.

Missile Engineer Will Teach Course

Dan Buckley, GD/Astronautics missile electronic design engineer, will teach a course in Industrial Electronics sponsored by San Diego City College opening Jan. 30 at Kearny Mesa High.

Astro employees may enroll by attending the first class at 7 p.m. Classes will be held from 7 to 9:30 p.m., Tuesdays and Thursdays.



RIDING ON AIR—Friction-free bearing developed at GD/Astronautics is demonstrated. At left Barbara Barbat whirls on disk built for human requirements group. Center: Pat Nobles is "towed" by T. A. Herbert, using thread. Right: Barbara moves 15,000-lb. load, supported by 20-in.-square bearing, with finger push.

SMOOTH SAILING—Inventors T. A. Herbert and Earl Christian use breath to propel "passengers" standing on friction-free bearing device developed at GD/Astro. New concept is based on "floating" heavy objects on thin cushion of air or other inert gas. Compressed air is fed to bearings at low pressure.

'Friction Free' Bearings Produced Through Use of Compressed Air

Imagine moving a loaded railroad car with one hand, or shifting a refrigerator at the touch of a finger!

Recent disclosure of a friction-free bearing and levitation device produced by General Dynamics/Astronautics applied manufacturing research and process development (Dept. 290) brings these and other Samson-like feats into reality.

In a joint effort, E. L. Christian, project engineer, and T. A. Herbert, manufacturing research supervisor, conceived the idea for the bearing, and early last year designed and built a prototype.

From this, several models have evolved, and found application in tasks ranging from welding to space-age research.

The bearings eliminate friction by "floating" objects to be moved on a thin cushion of air or other inert gas. No oil or other lubricant is ever needed because surfaces are always separated by a layer of air while in motion.

"Compressed air from factory supply or from portable bottles is fed to bearings at low pressure," Christian explained. "On each bearing surface are a series of small channels or 'tributaries' which trap the air to force the bearing away from the surface on which it rides."

A 20-by-20-inch test bearing recently supported a 15,000-pound load, which—after starting inertia was overcome—required only ounces of force to move freely.

Although the load was unbalanced, exactly .0001-inch clearance was maintained between bearing and surface.

In an early application, a flat friction-free bearing was used to support a 770-pound steel plate on a drill press work table. One man then manipulated the heavy plate while drilling a multiple-hole pattern.

Production-scale welding of extremely thin materials became possible when friction-free bearings were installed in a new carriage built for a straight-line welder.

Where the original carriage was moved over 10 roller bearings by a gear drive, the new model floats along on four air bearings propelled by a rubber roller.

The smooth-riding "airborne" carriage permits welding of material only .003-inches thick—actually thinner than inherent movement through vibration, "flutter" and back-lash found in the original device.

The air bearings quickly caught the eye of GD/Astro human requirements group (Dept. 147-6) which had long sought a means to study human ability to control weight (perform simple tasks) without the attraction of gravity.

Christian supplied them with two "space scooters"—a stool and matching work table mounted on friction-free "feet." When stool and table are placed on a smooth surface, test subjects find the bearing-supported scooters skid crazily at their slightest shift or radical movement.

The coefficient of friction for the scooters (force required to keep them in motion) was less than .00000167 (less than one-tenth gram) as measured on the most delicate scale available at the time of testing.

A rotary bearing, built for the same group, is used in related research.

A modified version of an air bearing almost 12 feet in diameter is now in use at the bottom of GD/Astro's hydrochemical forming tank. It acts as an air cushion to protect the pool structure from damage during forming operations.

"By increasing the bearing surface area, and the pressure of air or gas it receives, there is no limit to the amount of weight friction-free bearings can support," said Herbert.

Heavy machinery can be shifted easily by jacking it up and slipping a friction-free bearing under each corner as a levitation device. Bulldozers, factory equipment and even missiles can then be moved about easily by only one man.

In a test of one bearing, 3,000 pounds were towed along by one man pulling on a piece of sewing thread, while in another demonstration, an equivalent weight glided smoothly along with nothing more than the inventors' breath as a motive force.

Proper Handling of Materials Emphasized in New Course

Proper handling of materials—a subject whose significance is often overlooked in the fast pace set by modern production methods—is receiving new emphasis at General Dynamics/Astronautics.

At the request of F. J. Parker, GD/Astro's chief of stores and traffic, Fred Sevey of educational services (Dept. 130-3) now conducts regular classes in the subject.

"Of every manufacturing dollar some 22 cents are spent on material handling—processing, moving and storing the product," Parker explained. "Damage to that product at any time before it reaches the customer can skyrocket production costs."

While the first students enrolled in the class are material (Dept. 833) employees directly concerned with material handling as their primary job, Parker emphasized that all GD/Astro employees have definite responsibilities.

"The man who stacks a heavy box on top of fragile items is as guilty of poor handling procedure as the fork-lift operator who drops a case of fragile instruments," he said. "Material handling involves everyone from management on down."

This responsibility applies not only to perfect units ready for delivery to the customer. Frequently mishandled are new items tagged by inspectors with a "failure and consumption inspection report" (IR form).

"Appearance of this sheaf of papers on an item doesn't mean the unit is worthless," Parker stressed. "Often only a few cents' worth of repairs can place it in perfect condition, and it should be handled accordingly."

Sevey prepared the 7½-hour course with the assistance of Marvin Gutzka and A. J. Talberg of applied manufacturing research and process development (Dept. 290). They have also assisted during class sessions which are held daily, five days a week.

Class subjects include handling methods, packaging, loading, cleanliness, equipment, transportation and safety.

"But our main objective is to get students to think," Sevey said. "Ever notice how the bread is always placed at the top of your grocery bag? That's common sense — and good material handling."

By mid-February, some 250 material department employees will have attended the classes. After that time, the course will be made available to other departments.

BRIGHT EXAMPLE — Sandra Pearson, 17, daughter of GD/Astro's Walter Pearson (Dept. 250-1) displays sparkle which helped win "Outstanding Senior" title in recent Heartland Parade. Active in many extracurricular activities, Sandra also is honor student at El Cajon High.

QUICK CHECK—R. B. Stangl, chief of vendor research and evaluation, checks out product in GD/Fort Worth's vendor microfilm library. Machine can "thumb" 200 pages a second.

'TV' Micro Reader Gives Fast Information On Capabilities of Thousands of Vendors

Buyers and engineers at GD/Fort Worth can find out about a vendor and his product simply by switching on "television" and viewing a microfilmed report.

The "TV" is a reader in which a 4x4-inch cartridge, containing literally volumes of microfilmed information, can be fed and read.

A buyer seeking information on "terrain-clearance radar" systems, for example, would insert the appropriate cartridge containing manufacturers of this system. After pinpointing his reference, the buyer simply pushes a button and the reader flips through microfilmed pages to the desired page. A photo reproduction of the page may be obtained in seconds.

Over 70,000 pages of equipment information are now microfilmed, catalogued and cross-indexed by product and company.

To supplement the product/supplier information available from the vendor microfilm file, GD/FW will eventually add supplier evaluation ratings and other pertinent vendor information gathered from a supplier evaluation program.

Similar files at GD/Convair, GD/Astronautics and GD/Pomona Divisions will also swell during coming months due to supplier evaluation programs.

"Each division standardized questionnaires to obtain data on all vendors they've used or might use in the future," explained D. C. Wren, vendor evaluation analyst.

"Information concerning a company's finances, management structure, quality control, engineering talent, past performance, present products, and countless other facts are evaluated, then passed on to other divisions."

Wren feels that GD/FW's vendor microfilm library might well contain detailed information on as many as 50,000 vendors in the near future.

SEA-PAINTERS—Two GD/FW electronics technicians who are also accomplished artists put finishing touches on massive seascape mural in local restaurant. They are John E. Johnson, on ladder, and Charles Herman, both Dept. 75.

Landlubbers

GD/Fort Worth Electricians Painting Seascape in Leisure

Two GD/Fort Worth landlubbers are putting finishing touches on a gigantic seascape mural at Zuider Zee Seafood Restaurant, and their artistry already is attracting favorable critical recognition.

The two Air Force veterans, Charles Herman and John E. Johnson, are second-shift electronics technicians in Dept. 75.

They were commissioned to paint the mural by the restaurant's owner after he had seen other examples of their work.

The mural, 45 feet long and eight feet high, depicts a rocky sea coast, a lighthouse, a sailboat in the distance—and a little boy, who's "lost in all those rocks." Sea gulls soar overhead.

Herman and Johnson became friends through a chance meeting at GD/FW about a year ago.

Both men share a lifelong interest in art. Herman recalls that his first "professional" work in painting was his job as staff artist on the newspaper at Lowry AFB in Denver. He served in the Air Force from 1954 through 1957, coming to GD/FW the following year.

Johnson studied art throughout his school days in Austin, his home town. He served in the Air Force from 1956 through 1960, and joined GD/FW soon after his discharge.

Hinz to Head Office at L.A.

A new General Dynamics Corporation office for the Los Angeles area has been opened to handle program development activities with military and government agencies, K. M. Smith, General Dynamics vice president-program development, announced.

Earl R. Hinz is manager of the office, located at 2100 Sepulveda Blvd. Hinz has been manager of Los Angeles office of General Dynamics/Convair division since it opened last January.

His staff will maintain corporate liaison with West Coast operations of the Air Force, Navy, Army, National Aeronautics and Space Administration, Federal Aviation Agency.

Hinz joined Convair in 1950 as senior engineer and transferred to Astronautics division in 1958 as design specialist in the advanced systems sub-department of engineering. He directed preliminary design and systems studies for advanced applications of the Atlas missile and Centaur.

WINNER—"Little Joan" won CRA Camera Club print-of-year honors at San Diego for Ron Ainsworth, Dept. 6, in annual judging. Photo was shot at 1/5 sec., F/5.6.

SAKE TIME—John W. Knebel, GD/Convair test pilot, and his wife (left) are greeted in traditional Japanese fashion at annual World Airlines Meeting in Las Vegas. Japan Air Lines hostess Fumiko Takakusu serves sake to John Geddes (center) of Pasadena and Dick Yamashita, JAL assistant sales promotion coordinator.

Electronic Theory And Math Courses Offered For Astro

Several San Diego City College courses will be offered in classes to be taught at General Dynamics/Astronautics main plant and Plant 2 beginning late this month.

Students are now being accepted. Plant 71 employees may call Laura, ext. 1933 to enroll, while Plant 2 registration is handled by Helen, ext. 1182. Classes will be taught on employees' own time.

At the main plant, Basic Electronic Theory and Components will be offered from 2 to 4:30 p.m., Monday and Wednesday beginning Jan. 29.

The following courses, with times in parentheses, will be offered Tuesday and Thursday: Optical Tooling (4 to 6); Basic Electronic Theory (4:30 to 7); Basic Electronic Theory (5 to 7:30); Aircraft Machine Shop Math (4 to 6:30); Basic Electronic Theory and Components (4 to 6:30); and Blueprint Reading (4 to 6).

Courses at Plant 2 will be taught in Bldg. 28. Effective Writing will meet from 4:45 to 7:15 p.m., Mondays; Industrial Math on Wednesdays, 4:30 to 7 p.m.; and Basic Electronics from 4:30 to 7 p.m. on Mondays and Wednesdays.

Classes in both basic and advanced Blueprint Reading will be held from 4:30 to 6:30 p.m., Tuesdays and Thursdays at Plant 2.

Documentation Group to Meet

General Dynamics members of the newly-formed San Diego Chapter of the American Documentation Institute may make reservations now for the first quarterly meeting.

Date of the first session is Saturday, Jan. 27, at Doric Hotel in Point Loma.

Panel discusion on "What is Documentation?" will be from 3:30-5 p.m. with Thurber Moffett, management systems specialist, GD/Astro, a panel member.

Business meeting will be at 4:45 p.m.; social hour, 5-6 p.m.; dinner and program, 6-8 p.m.

Frank Marzocco of Systems Development Corp. will be dinner speaker on "How Modern Computers Analyze and Digest Thought Processes."

Over half of the group's present membership are General Dynamics people with two General Dynamics men holding offices, W. T. Morris, Astro engineering librarian, secretary; and L. E. Leonard, General Atomic assistant librarian, treasurer.

Reservations and membership information may be had by contacting chief librarians at GD/Astro, ext. 1073, or GD/Convair, ext. 1543.

880 Jet Hits 697 mph Ground Speed During Flight to Florida

A Delta Air Lines Convair 880 jet transport set an official intercity speed record of two hours, one minute, the first of this month between Chicago and Miami.

The Convair jetliner averaged 625 miles per hour over the 1 259-mile route. Aided by a tailwind which at times reached 87 knots, the passenger jet reached a top ground speed of 697 miles per hour between Louisville and Atlanta. Altitude was 29,000 feet.

There were 65 passengers and crew of six aboard.

In other Convair 880 activities recently, Northeast Airlines carried 1,634 passengers on 880 flights during a 24-hour span. Twenty-two flights scheduled Dec. 21 averaged 72 passengers to a flight.

Save Material — Don't Throw Your Job Away!

En Garde!

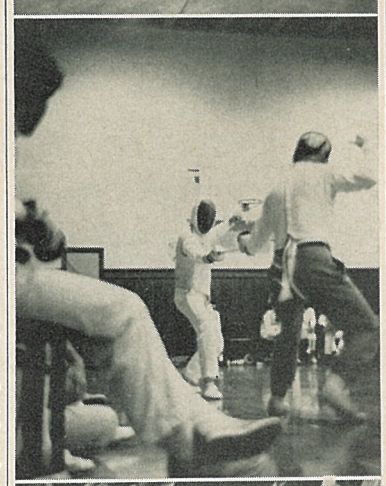
'Electrically Wired' Fencers Cross Foils in GD Tourney

More than 50 fencers representing 11 clubs in Southern California took part in the San Diego Invitational Fencing Tournament sponsored last month by the joint ARA-CRA Fencing Club.

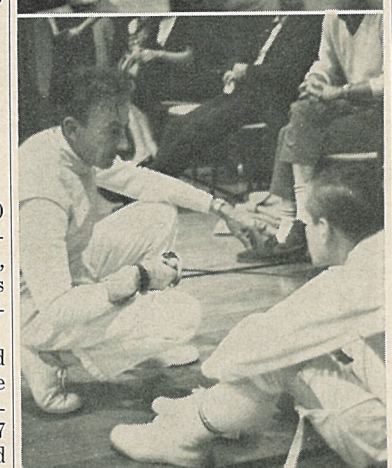
Barbara Proppe, Astro daughter, holds spectator attention.

Ray McNamara, president of ARA-CRA fencers, discusses bout with Olympic fencer Maxine Mitchell. At right is Audrey Knauer.

Astro's Mike Hurley, as bout director, keeps close eye on action.



L. E. "Jeep" LaMont faces Capt. Hart Kait, USN.



LaMont (Astro Los Angeles office) advises young fencer.

Hurley checks electrical scoring during match.

Held at the downtown YWCA, the meet attracted 31 men and 23 women contestants to events running from 1 p.m. until late evening. Finals and semi-finals in the all-foil competition were fenced with electrical scoring equipment for split-second scoring.

Although an internationally popular sport, fencing has its roots deep in history when skill with a sword was the best available "life insurance."

Since then, swordsmanship has become a formal athletic contest with rigidly defined rules for use of one of three weapons.

The foil, a light weapon with flexible blade, is an outgrowth of the earlier "court sword."

The epee is a modernized rapier with stiff rectangular blade, while the sabre — which grew from the early broadsword and later cavalry weapon—is slender and flexible for use as a slashing weapon.

"Modern fencing bears little resemblance to movie 'swash-buckling,'" explained Mike Hurley, ARA commissioner. "Contestants face each other on a six-by-40-foot strip (no furniture allowed) under the eyes of a bout director who serves as judge. Masks and heavy vests are for protection."

Because of the sport's extreme speed which makes judging difficult, an electrical scoring system has been adapted to foil and epee contests. Fencers and their weapons are "wired" to an alarm which sounds to indicate scoring contacts.

The ARA-CRA club now lists about 40 employees and dependents, with members meeting each Friday from 7:30 to 11 p.m. at the San Diego YWCA for practice. Equipment is furnished by the club.

Ray McNamara is club president, and Pete Beyrer is CRA commissioner.

The recent club-sponsored tournament is one of the largest fencing events of its type in the area and attracted teams from colleges and clubs throughout the southern part of the state.

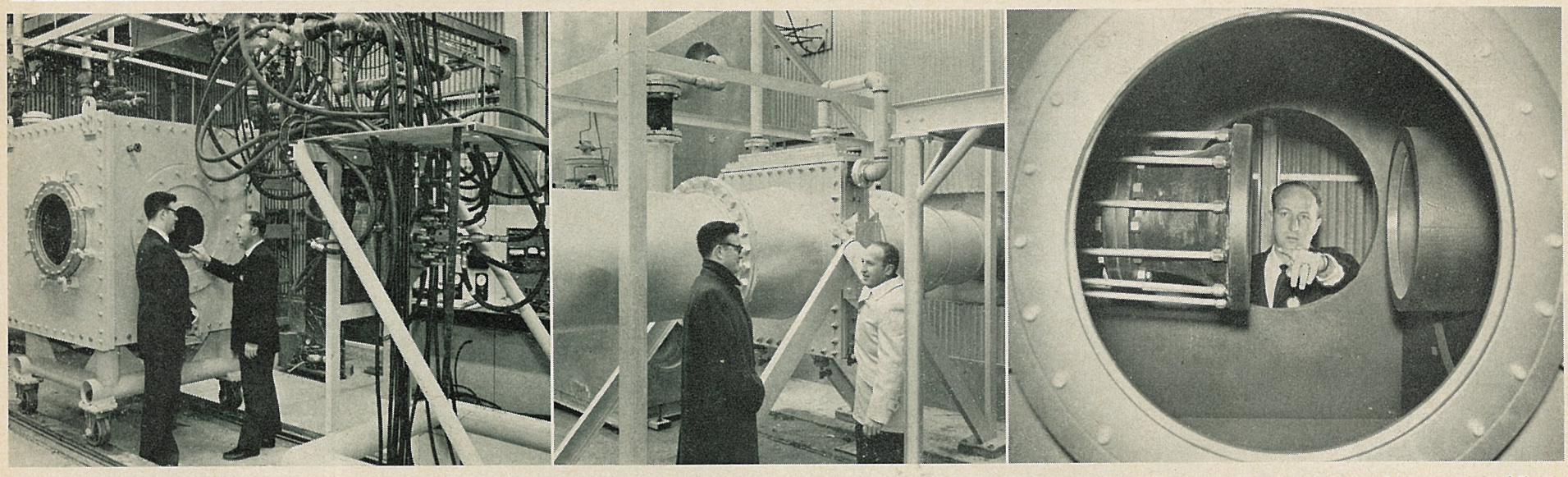
Barbara Proppe, GD/Astro daughter, won a second-place trophy in the women's event, and Hurley, despite serving as bout director for numerous events and figuring prominently in tournament organization, placed fifth in men's finals.

"Both beginners and advanced fencers are welcome at the club's meetings," Hurley said. "Interested employees may contact me at GD/Astro ext. 2857, or Beyrer, GD/Convair ext. 1245, for additional information.

Employees in the Los Angeles area practice the sport under direction of GD/Astro's L. E. "Jeep" LaMont (Dept. 143-5).

FORTY-FOUR SETS FREIGHT RECORD

Canadair Limited's Forty-Four turbo-prop, in service with Flying Tiger Lines, recently smashed the national record for largest single load of air-freight ever flown transcontinentally when it moved 64,744 pounds of "pay-load" from Detroit to Los Angeles.



HOT WINDS—Hyperthermal Research Facility goes into service this month at GD/Fort Worth. At left, Bob Stevens, project engineer, and H. D. Cooles, design engineer, inspect unit. In center, Stevens points to steam injection system, while at right he indicates "torture chamber" where space plane models will be suspended.

GD/Pomona First Named Guided Missile Division

(This is installment No. 75 in a continuing history of General Dynamics products. It concludes narrative regarding development of Terrier missile.)

Early Terrier production was carried on at San Diego in a reactivated section of Plant 2 until a separate Guided Missile Division (Convair, Division 3) was organized in March, 1953.

Still in infancy stage, the missile industry was given a sharp forward thrust when the Naval Bureau of Ordnance contracted to build the first fully-integrated missile production center in America on a Pomona site owned by Convair.

Ground for the new facility was broken Aug. 6, 1951, and authority for operation placed under the direction of Convair.

The engineering building was ready for preliminary use July 31, 1952. Gradual relocation of related personnel and equipment took place during the next year until the manufacturing building opened for operation in mid-1953.

C. F. Horne, now president of GD/Electronics and GD/Pomona, assumed responsibility for the division's direction July 15, 1953.

Renamed Pomona Division, the original plant was built on 141-acre grounds with 1,286,000 sq. ft. of floor space. The 17-acre manufacturing building was entirely air-conditioned because of the care required in making missiles. Final assembly was conducted in a dust-free room entered only through double-doors.

During early stages of Terrier development, Convair worked independently on another Navy anti-aircraft missile, the Lark. This program originated in the spring of 1945. Vultee Field submitted a preliminary design proposal to the Bureau of Aeronautics in May and received a letter of intent contract June 23. (Fairchild Aircraft was also a Lark contractor and worked separately on developing the missile.)

Convair's Lark (XSAM-N-4) was approximately 16-ft. long with broad cruciform wings and smaller tail fins. Powered by an RMI liquid (acid and analyn) rocket motor, a target-seeking system was developed by Raytheon Manufacturing Co.

Convair designed the control system and auto pilot and moveable wing with tail-fin trimming.

More than 100 of the missiles, which featured two booster JATO bottles mounted in a drop-off tail ring, were built and tested. The contract was terminated in 1948 when the Aeronautics Bureau was removed as an anti-aircraft agency.

Dynamics Men Head Society

General Dynamics engineers hold top posts in the Aerospace Electrical Society of San Diego following reecnt election of officers.

E. F. Kotnik, GD/Convair assistant project engineer, heads the group as president for the coming year. T. W. Ochodnicky, engineering forecasts and estimates supervisor, and W. T. Dorrance, chief aerospace systems engineer, both of GD/Convair, are vice president and secretary respectively.

Top left: T. W. Ochodnicky; top right: E. F. Kotnick; lower left: C. F. McCabe; lower right: W. T. Dorrance.

C. F. McCabe, assistant chief engineer electrical design at GD/Astronautics, is incoming treasurer.

All of the newly-elected officers have an average experience in the aerospace industry of 20 years each. Kotnik has been with GD/Convair for more than 20 years in various line and staff assignments on electrical equipment and system developments from the PBY to the four-engine jet commercial programs.

Other General Dynamics men serving on the executive committee are C. G. Erickson, D. G. Wilson, H. Nicholas of GD/Astro; A. A. Fabbri and E. R. Gauthier of GD/Convair.

First activity for 1962 will be as a sponsoring society of the coming National Engineers week slated for next month.

Information on the local chapter may be obtained from Kotnik, ext. 2432; Ochodnicky, ext. 1164, both Plant 1, GD/Convair; or McCabe, ext. 2244, Astro main plant.

Hours of Poll Tax Collections Set

Poll tax receipts will be on sale in the company cafeteria from 11 a.m. to 1 p.m. and from 3 to 4 p.m. on Jan. 24, 25, 26 at GD/FW.

Representatives from the office of Reed Stewart, county tax assessor and collector, will be available during these hours only.

Employees must use this service only during their lunch period or either before or after regular working hours.

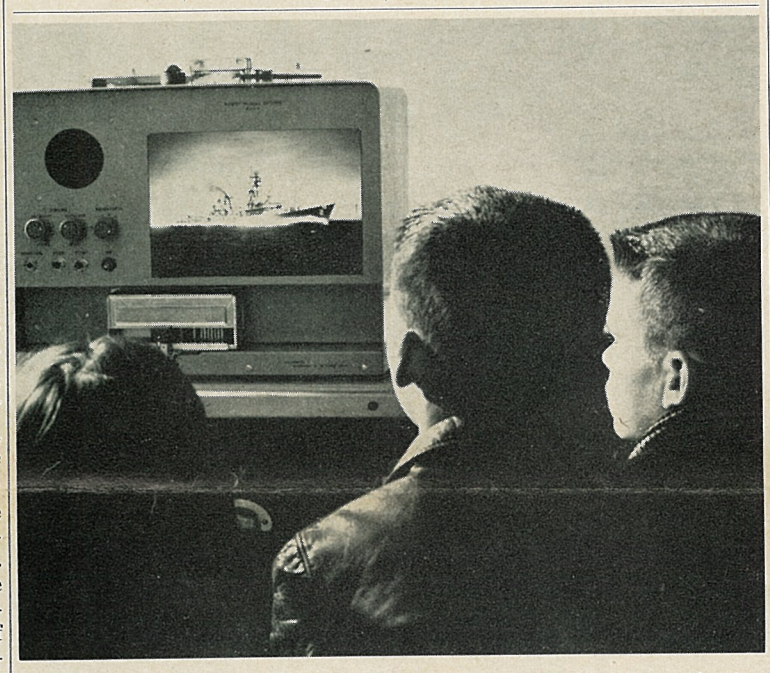
A spokesman from the tax assessor's office said sales would begin and end promptly at the designated hours.

ES Reaches Convair By Special Delivery

Two Empolyee Suggestion originators at GD/Convair didn't trust to luck to see that their ideas reached the right parties.

Cost reduction section received the suggestion form via registered, special delivery mail—with 78 cents postage attached!

In spite of extra handling care, it still took three days (over a recent weekend) for delivery.



WELCOME ABOARD—Youngsters watch audio-visual production packaged by GD/Pomona that explains operation of USS Charles F. Adams (DDG-2), Tartar-armed destroyer.

Illustrated, Too

Missile Destroyer Story 'Told' In Ten Different Languages

The guided missile destroyer USS Charles F. Adams, which left recently for an extended European tour, is equipped to tell her story in 10 different languages.

The unique presentation is an audio-visual package prepared by General Dynamics/Pomona at the request of the ship's skipper, Cdr. Bob Munroe Jr. Nortronics Division of Northrop Corporation, which produced the audio-visual equipment used to help check out the ship's guided missile system, also participated.

The package, delivered to Cdr. Munroe three days before the Adams departed Charleston, S. C., for Europe, included 56 slides that show what makes the ship tick. Also included were 10 accompanying tape recordings in 10 different languages.

The tapes were translated and narrated almost exclusively by GD/Pomona personnel. The only exception was the tape in Portuguese, which was translated by J. A. Pomeroy (Dept. 7) and Leonard Pronko, professor of romance languages at Claremont Men's College. Pronko also narrated this tape.

Tapes were also prepared in Swedish, Danish, Dutch, German, French, Spanish, Italian, Greek and English.

Oscar Staverfield (Dept. 6) prepared and narrated the tape in Swedish, and the Danish version was translated and narrated by W. E. Green (Dept. 7). The English version was narrated by A. E. Lambert (Dept. 3).

The other tapes, with the narrator listed first, were prepared by: Dutch, L. T. De Roos and R. M. Mees (both Dept. 6); German, Alfred Beck, Dr. H. E. Trucks and Mrs. Carolyn E. McConnehey (all Dept. 6); French, F. D. Craig and C. E. Angelici (both Dept. 6); Spanish, J. A. Pomeroy (Dept. 7) and A. J. Chippendale Jr. (Dept. 6); Italian, L. N. Di Pinto, Jules Jonas (both narrators) and Ettore Buttora (all Dept. 6); and Greek, Spyros Daoussis (Dept. 6) and J. N. Constant (Dept. 7).

When the Adams stops at various ports in Europe, many visitors will be welcomed aboard. They will first see the audio-visual presentation in their own language, and will then make a physical tour of the ship.

The Tartar surface-to-air missile was developed and is being produced at General Dynamics/Pomona.

"You gotta admit Casey's a real competitor."

FW's New Wind Tunnel Will Simulate Speeds And Heat of Re-entry

A space-age "wind tunnel" for simulating Mach 13 speeds and thermal environment temperatures as high as 15,000 degrees Fahrenheit went into operation at GD/Fort Worth this month.

The new Hyperthermal Research Facility (HRF), located south of experimental building, will be used by GD/FW aerothermodynamics engineers to help solve problems missiles, satellites and other space vehicles face when re-entering the earth's atmosphere.

"HRF is one of the few facilities of its type in the country," said Bob Stevens, project engineer. "It differs from a regular wind tunnel in that it can be used to simulate not only extreme speeds, but the terrific heat generated by re-entry."

A heat-producing plasma generator (so called because a gas becomes "plasma" when heated to extreme temperatures) is nerve-center of the facility. Bottled nitrogen is pumped into the generator and heated instantly as it passes through a high intensity electric arc. Nearly two million watts of electric power can be supplied to the arc. The apparatus is cooled by water.

A secondary gas, oxygen, is injected into the stream to form simulated air, which then rushes into the test chamber through a nozzle at speeds as high as 7,000 miles an hour.

After flowing past a model suspended in the test chamber, the hot air is passed on to a heat exchanger, then through vacuum ducts and ejectors.

Objects as large as six inches in diameter and 12 inches in length can be tested for as long as three minutes.

"Most existing hyperthermal facilities can sustain high-temperature, high-speed tests for only about 1/100 of a second," Stevens said.

Temperatures ranging from 2,000 to 15,000 degrees can be simulated, along with Mach numbers up to 13.

Speed of the air stream is determined by a family of "supersonic nozzles," which are connected to the plasma generator.

Shorter nozzles, smaller in diameter, will be used to obtain lower speeds, while larger nozzles will expand the air blast, creating an air stream of higher speed.

The test chamber has windows about 20 inches in diameter and one-inch thick.

Test results will be measured by such devices as a spectograph (to determine temperature and chemical composition of the stream); a system for observing shock waves and boundary layers; and special instruments to measure pressure in the air and heat transfer to the models.

"Much of the early research work in the facility will be of plastics and other ablation materials which don't conduct heat well and also melt or vaporize at certain temperatures," Stevens said.

Such materials, now used on many missile nose cones, literally "peel off" as the cone builds up to temperatures as high as 2,500 degrees for a short period—about 30 seconds—during re-entry into atmosphere.

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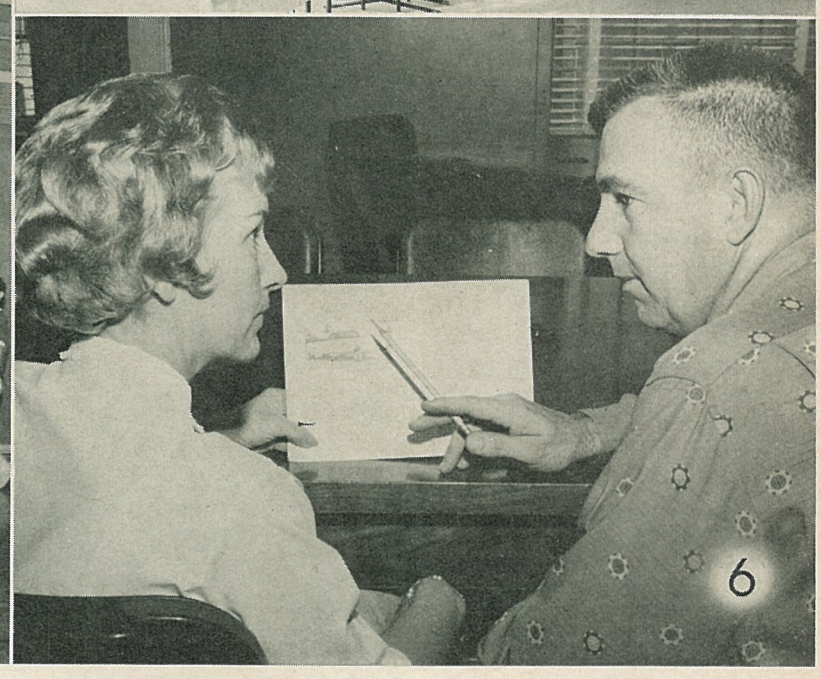
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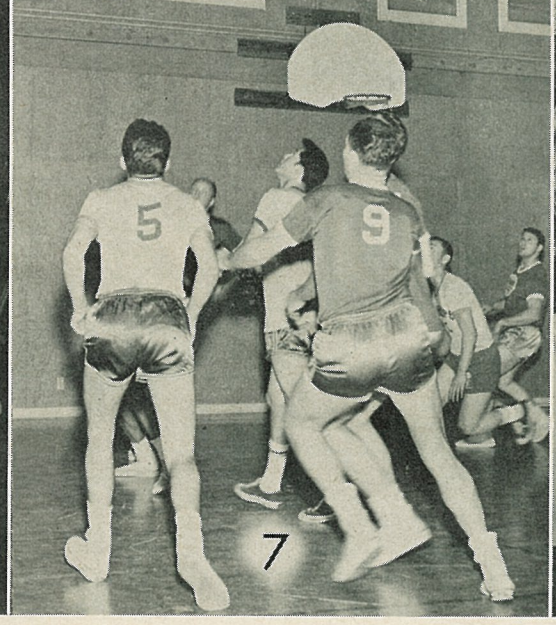
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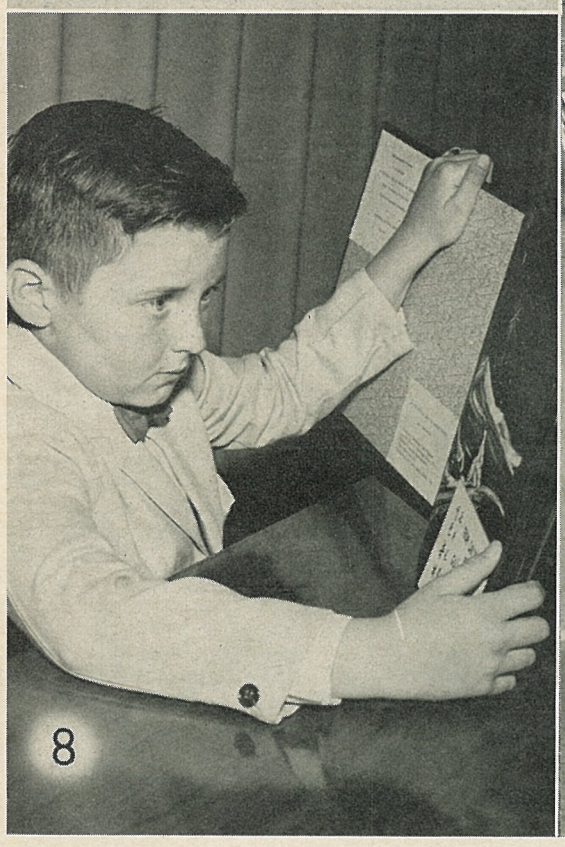
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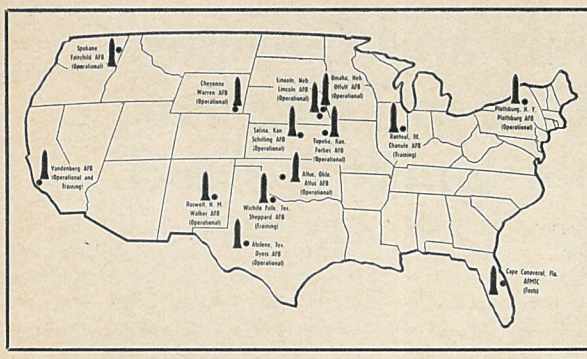
TOUCHING THE BASES—(1) Completion of reliability assurance project at Vandenberg AFB is marked by paper-signing by Carmen G. Baca, AF contracting officer. Standing are Don Moore, Astro base contract administrator; P. T. Gardner, then acting Astro manager; Leonard Fitzgerald, AF quality control chief on Atlas; J. Claude Major, Astro chief of quality control at VAFB. (2) Astro folk at Sheppard AFB gave $724.80 to base donation of over $21,000 to Greater Wichita Falls United Fund. At right is Robert M. Kirkpatrick, Astro training supervisor. Others are Col. E. J. Lodell, Maj. Gen. Thomas E. Moore, Lt. Col. Charles W. Leigon. (3) W. H. "Buddy" Touchberry, Astro photographer at Schilling AFB, was "dressed for part" when mercury dropped to 11 below recently. (4) At AFMTC Astro anglers received prizes for catches from Commissioner C. W. Alsworth, center. Others are Leonard Kaminski, John Mazza, Julia Urban, Joe Longo. (5) Mrs. Frank Mays, left, of Astro Wives Club at Schilling AFB is shown with gifts presented to Mrs. Judith Bishop of Community Chest. (6) At Vandenberg AFB Donald Jardee, boating-fishing commissioner, and Mrs. Harry Payne, ARA president at Vandenberg, discuss boat-building plans. (7) Typical of Astro cage teams at bases is this squad at Vandenberg AFB. In dark jerseys are George McGavern and Bud Barber. (8) Robin Malone, 9, son of Astro's Mrs. Robert Malone of Vandenberg AFB, has faraway look as he thumbs scrapbook prepared for Korean orphans. It accompanied gifts as children's Christmas present. (9) Recognized for two years of accident-free driving at Vandenberg were four vehicle drivers. From left: R. C. Cook, foreman; drivers Ben Neville, William Wynne, Francis Humfleet, Gene Sims, site engineering chief, driver Brison Yerkey, M. G. Rustin, safety engineer; Robert Bolls, foreman. (10) Playing and singing at lunch period at Schilling AFB are Ruby C. Graves, Gilbert Prier, K. O. Chestnut and A. Berry. (11) Santa (Astro's John Livsey) plays host to Walker AFB sons and daughters. Children are Glenda Riley, Sharon Spain, Carl Needham, Ray McDonald. (12) At Walker AFB Astro's Chester Bass, Harold Cruse, Howard Rang and Joe Maes load truck with food, clothing, toys collected by production control people to bring Christmas to needy family of 14.



OFF-SITE NEWS

GENERAL DYNAMICS NEWS CONTACTS

AFMTC—P. C. Brown, ext. 3-4741.
ALTUS—A. P. Dawkins, ext. 7141.
DYESS—G. D. Higgins III, ext. 8370.
EDWARDS RS—Chris Marques, ext. 27.
LINCOLN—Maxine Utley, ext. 412.
PLATTSBURGH—Kenneth Emery, ext. 6242, 6243.
SCHILLING—J. E. Riley, ext. 213.
SHEPPARD—Steve Delbridge, ext. 8243.
VANDENBERG—Lucy Signorelli, ext. 8-5046.
WALKER—Rod Bricker, ext. 603.
WARREN—Alice Watters, ext. 73-716.

Astro Crew of Ten at Warren Handles Vast Freight Load

WARREN AFB—Every Atlas operational and test base has a General Dynamics / Astronautics shipping and receiving operation, but the one at this Wyoming base might well lay claim to being the busiest.

Every week for 44 weeks straight the average material handling chores accomplished here ran up to or above 63,000 lbs. for a startling total of more than 2,800,000 for the period.

And this work was accomplished by a crew of 10 employees which included two typists!

First of Atlas operational bases, Warren personnel have worked out some smooth routines in supporting activation of Atlas facilities at Warren I, II and III. These talents are currently being utilized in follow-on programs.

The 44-week period in question started early last year and ran through the end of September. During this period receiving and shipping handled over 16,000 different pieces of equipment, materials and supplies in both incoming and outgoing shipments. Included were shipments started here, those from common commercial carriers and special flights.

Typical of flights involved are those routed through "Logair." San Diego-originated material went first to Norton AFB, then to Hill AFB and finally to Cheyenne.

Key personnel involved included supervisors Glenn Thatcher and Tommy Thompson. Sharing the work load were Mavis Williams and Marie Roth, clerks, and Mike Stephens, Manny Valdez, Al Virgil, Dave Murray, Harvey Reichert, Ed McVay and Harry Ulrich.

Wives at Schilling Donate Toys, Food

SCHILLING AFB—Astro Wives Club here drew 100 to a pre-Christmas buffet at the Officer's Club.

Arrangements were handled by Mmes. A. J. Goehle, Paul Garden, R. C. Graves and W. H. Gregg.

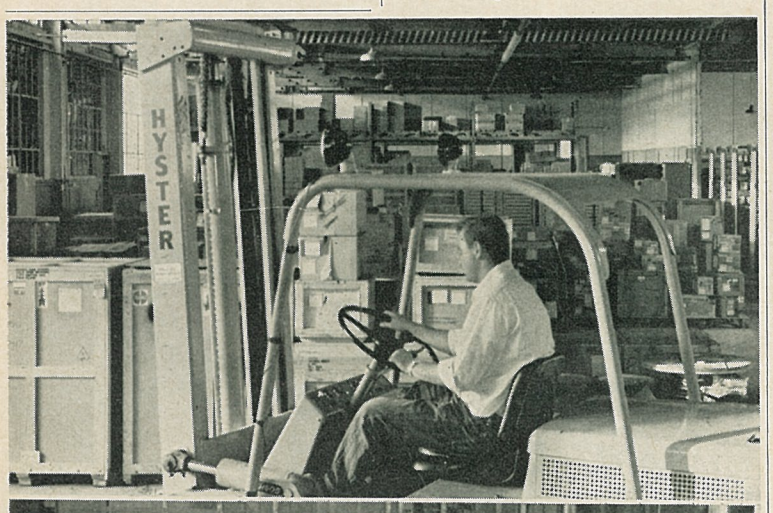
Mrs. Frank Mays, chairman, made a special presentation of gifts of canned food, toys and gifts to Mrs. Judith Bishop, executive secretary of the Community Chest for that group's charitable Americanization Center.

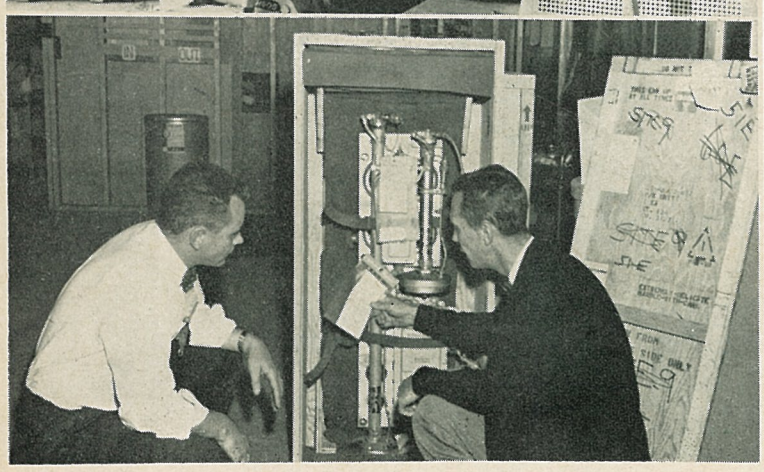
Door prizes were won by Mmes. Kenneth Cloptin, Jerry Delp, Glenn Williams, Harold Peck, R. C. Graves and Sam Weir.

NEWS Correspondent For Altus Appointed

ALTUS AFB—A. P. Dawkins, Astro's educational services representative here, has been named **General Dynamics NEWS** correspondent. He replaces John Lockwood, transferred to San Diego.

Located in Room 309, Bldg. 238, Dawkins may be reached at ext. 7141.





RECEIVING END—Astro shipping and receiving operation at Warren AFB is among busiest at any base. In top photo Harvey Reichert maneuvers a fork-lift, while below Glenn Thatcher and Tommy Thompson check an item.

AF Trainees Infiltrate Astro Crews at Cape

CAPE CANAVERAL — Actual experience in research and development testing of Atlas missiles is being gained by selected Air Force personnel in cooperation with General Dynamics/Astronautics here.

Dubbed "Operation Blue Suit," the program is coordinated by the Air Force Ballistic Systems Division (BSD), and consists of integrating Air Force officers, mechanics and technicians with experienced GD/Astro launch crews.

The program was conceived almost two years ago, and since that time has been implemented with increasing rapidity. At present, nearly 80 Air Force personnel are involved in the operation.

Early last year, "Operation Blue Suit" efforts were concentrated at Complex 11, where to date Air Force crewmen have participated in five Atlas ICBM launches.

Under the program's concept, an Air Force trainee is assigned to a skilled GD/Astro missileman who instructs him in specialized techniques, gradually increasing the airman's responsibility as he gains proficiency.

Ultimately, "Blue Suit" trainees will perform all R&D operations for a launch, while GD/Astro personnel monitor their performance.

Scope of the operation extends from technician to test conductor.

Major Richard Minor, in training for this top launching spot, served as missile assistant test conductor on a recent successful Atlas F-series launch.

On that flight, nearly two-thirds of the launch crew were Air Force personnel.

TOPEKA CHARITIES GET $8,700 GIFTS

FORBES AFB—Charitable gifts totaling $8,700 were made recently to agencies in the Topeka area on behalf of Astronautics Con-Trib-Club members presently or formerly assigned here.

R. A. Robertson, Astro's chief of product support, announced the gifts shortly before Christmas.

Sharing in disbursements were: Capper Foundation for Crippled Children; Kansas Division, American Cancer Society; Kansas Rehabilitation Center for the Blind; Lawrence Memorial Hospital; Lawrence United Fund; St. Francis Hospital; Stormont-Vail Hospital; The Menninger Hospital; Topeka State Hospital; and Topeka United Fund.

Astronautics recently completed activation work on Atlas launch and service facilities at this Kansas installation.

LARGE CAPE CROWD HEARS J. Y. McCLURE

CAPE CANAVERAL—Largest crowd ever to participate in an Orlando-Cape Canaveral section, American Society for Quality Control, was on hand recently to hear J. Y. McClure, General Dynamics director of reliability control.

McClure spoke on "Quality Control in Industry Today."

Attending the meeting were representatives of every major contractor, military and customer agency in the Cape Canaveral area.

A past junior president of the American Society for Quality Control, McClure was in this area to conduct an all-division panel on reliability in his official capacity as chairman of General Dynamics' reliability panel. Host was R. H. Nicholson, chief of quality control here.

Linksmen at Walker Win Tourney Turkeys

WALKER AFB — Twenty-five players took part in the first golf tournament sponsored by ARA here. It was a "Blind Bogey."

Winning turkeys were E. D. Wekkin, C. E. Slaven, O. G. Leonard, Blackie Patton and Hal Halvorsrud.

Heading the group are recently-elected officers: C. E. Slaven, president; H. C. Hatch, vice president; W. L. D. Chetney, secretary; J. Campbell, treasurer. Committee chairmen are Blackie Patton, handicap and rules, Bill Burbeck, membership, and Al Bentley, tournaments.

O. G. Leonard is commissioner.

'Above Average' Giving Recognized at Cape

CAPE CANAVERAL — Astro employees here have earned a special plaque presented by the United Appeal Committee of Cocoa, Fla.

The plaque, recognizing above average per capita donations, was presented by W. Bowden, 1961 United Appeal chairman.

Receiving the plaque were Astro's Robert Flanagan, Con-Trib-Club representative, and W. J. Usery, Grand Lodge representative of IAM here.

ASTRO GIRL WEDS

VANDENBERG AFB — Sue LaRussa, Astro secretary here for the past two years, was married Jan. 13 to Richard J. Crummie of ITT Kellogg. The wedding was held at St. Mary's Assumption Church, Santa Maria.

CAPE'S FIRST—Miles Hagan, left, first GD/Astro employee to retire at Cape Canaveral, Fla. bids farewell to B. G. MacNabb, operations manager at AFMTC.

First AFMTC Retiree Holds Driving Record

CAPE CANAVERAL — Miles Hagan, first GD/Astro employee here to retire, recently received his official retired employee's card.

A driver with GD/Astro since 1958, Hagan missed only one day of work during the entire period. He was never cited for a traffic violation or involved in an accident.

Hagan has been driving professionally since he was 17 years old.

LOX SHOW—Safety technicians P. T. Westmacott and Ralph Thompson put on liquid oxygen demonstration at Schilling AFB recently. At top Fred Christensen, safety engineer, discusses show with Col. R. T. Sweeney and John Riley, communication representative. Center: Westmacott shows bucket to curious—but not too brave—spectators. Below, Gilbert H. Prier gives safety lecture.

WOMAN'S ANGLE—Twenty attractive American Airlines stewardesses from Chicago and New York are snapped in wing primary at GD/Convair plant during recent briefing on Convair 990 jetliners, now going to airline. W. W. Lynt of GD/Convair (second from left) conducted tour. American officials are, at far left, T. W. Brooks, director of stewardess services; R. B. Tingdale, manager of stewardess training and processes; K. S. Van Dyke, manager of terminal services.

Pod Program Nearing End This Month

The B-58 two-component pod drop program is slated to near completion in January, with only five drops remaining on the schedule.

Hustler No. 4 was to make two more low-altitude drops of an upper-component over Tonapah Test Range, and a tank drop over either the Salina, Kan., or White Sands, N. M., range.

Upon completion of these drops, No. 4 will go into modification at GD/Fort Worth for updating before being returned to Air Force Flight Test Center at Edwards AFB.

No. 38 had only two more high altitude drops to make before entering the B-58 multiple-weapon testing program out of Albuquerque, N. M., according to Team Captain Jim Graham.

VIEW 990—Frank Pace Jr. (center), GD chairman of board, is greeted at GD/Convair by R. A. Neale and J. H. Famme.

COST-CUTTERS—A. W. Wright looks on as R. E. Kangas and K. W. Noonan insert blank for hydro-chemical forming of bottle cap. D. G. DeVlieg displays bottle and finished stainless steel cap.

$60 Cost For Single Steel Cap Cut To $5 by Hydro-chemical Forming

Small parts and big savings—over $10,000 on a single production order—are the result of a recent application of hydro-chemical forming methods at General Dynamics/Astronautics.

Since beginning operation last year, GD/Astro's hydro-chemical forming facility east of the main plant at San Diego has been used primarily to form large units such as housings and experimental hemispheres.

A need for 190 special stainless steel caps for liquid nitrogen test sample bottles recently provided an opportunity to test its use in manufacture of small parts.

The bottles are double-walled, stainless steel containers of two-quart capacity, used to draw off test samples of liquid nitrogen used in Atlas missile systems. Commercially available caps of chrome-plated brass were unsuitable for use with the nitrogen's extreme cold (about 320° below zero).

Toolmaker R. E. Kangas and K. W. Noonan, tooling assistant foreman (Dept. 452), were asked to supply the caps, but found that the traditional method—machining them, with threads, from solid stainless steel bars—required eight hours per cap.

Wincing at a cost of $60 each by this method (plus material), they asked D. G. DeVlieg of manufacturing research (Dept. 290-2) to develop a more economical production means.

DeVlieg carried the problem to W. C. Wilson (Dept. 290-2) and A. W. Wright, sheet metal assistant foreman (Dept. 732), who head hydro-chemical forming facility operations.

They developed a new approach to the project, in which a steel disk is welded to close one end of a .020-in. stainless steel tube. The "cup" thus formed is fitted into a steel die and the "set up" lowered into the hydro-chemical forming pool with about four grams of explosive.

Electrical detonation of the charge creates an underwater shock wave which forces the blank into the die. Result is a threaded cap, complete except for trimming!

Total expense, including die and process development: less than $5 per unit!

Materials and Designs Tried Out in Tests For Portable Landing Field

Landing mat panels, of a new-type construction developed at General Dynamics/Convair, were withstanding impact forces comparable to high-speed jet landings recently in a series of tests at San Diego.

A variety of materials and combinations have been under consideration by GD/Convair engineering during studies conducted for the Navy under a contract awarded last July. Work called for design, fabrication, and testing of SATS (small airfield tactical support) matting for portable landing fields to be used by Marine fighters making aircraft carrier-type approaches.

Specimens now leading the list for possible use as matting material are of sandwich construction. Cores are solid spruce wood faced with aluminum.

G. L. Pankey, project leader, said that other light-weight materials considered for portable panels included steel, fiber glass, magnesium, to name a few, as well as combinations of different metals and woods.

"Prime candidate for matting material—the wood and aluminum sandwich—seems to meet all requirements," he said. "The wood core can absorb high impact energy and can be built at a lower cost than the all-metal types."

However, an all-aluminum brazed honeycomb panel will undergo rigorous tests as the testing program continues.

A series of at least 50 tests has been run during the last couple of months by the materials and processes laboratory at the San Diego plant.

Impact tests, proving that the material could withstand a 135,000-lb. landing force, wound up the current series.

Steel weights, from 44 to 110 lbs., were dropped from a height of 35 feet onto specimens (covered with rubber pads acting the part of wheel tires) to simulate extreme force of actual jet plane landings. Drops were made from the top of the evaporating tower behind Bldg. 5, Plant 1.

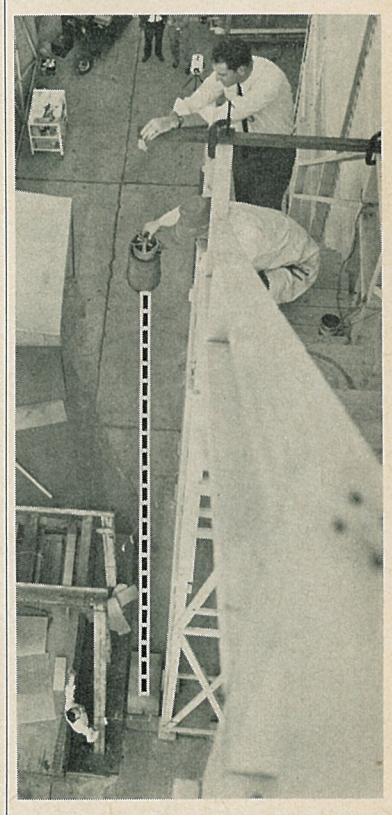
Other tests included fatigue, beam bending, shear, rolling wheel load, edge connectors, temperature extremes.

Preliminary hook impact tests also have been run successfully by the Navy at the Naval Air Engineering Laboratory, Philadelphia, Pa., on panel assemblies furnished by GD/Convair.

All specimens, and two full-size panels 52 inches square, were built in GD/Convair's experimental model shop. In addition, a tool has been designed for handling and adjusting the panels as they are laid to form a landing strip. It would take 20,000 panels to make a complete SATS field with landing strip 72 by 2,000 feet.

Panels designed at GD/Convair have connectors on all four sides with bars fitting into the slots to firmly join individual panels. Advantage of such a system, explained Pankey, is that individual panels can be removed and replaced easily without disturbing the rest of the landing strip.

A full report on initial studies on the SATS MATS project, as it is known, will be submitted to the Navy for consideration before the end of this month.



HIGH DROP—Harry Ruscigno, GD/Convair engineer, (on steps of high evaporating tower) adjusts wire holding steel weight, steadied by Bill Parker of materials and processes lab, before drop on SATS MATS test specimen. Forces duplicated those produced in high-speed jet landings.

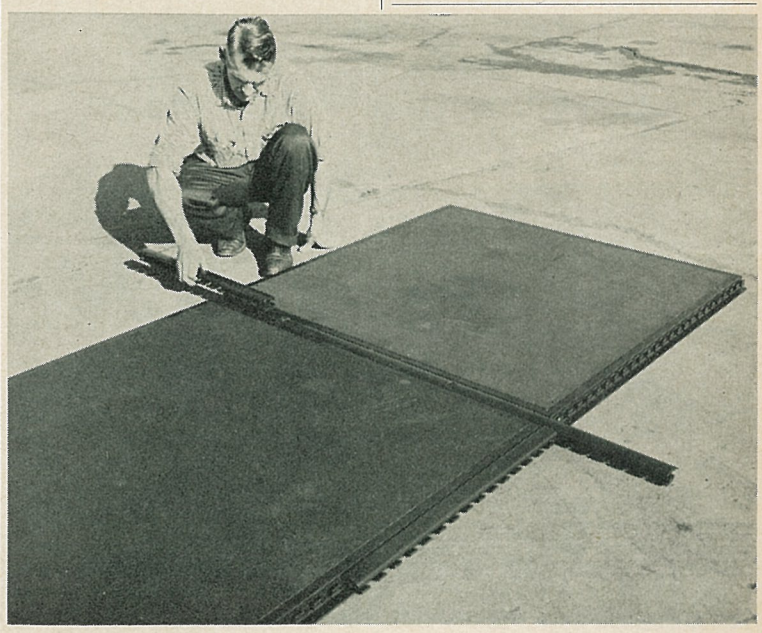
Consolidated 'Vets' Reunite 26th Time

Consolidated Aircraft oldtimers renewed pledges of friendship for another year as they gathered for their annual New Year's Eve party.

For the 26th time the group, now numbering some seven couples, welcomed in the young year together. They were the balance of 24 Consolidated employees who began the tradition in 1935 when the company moved from Buffalo, N. Y., to San Diego.

Missed this year were the Ben Kiegles. His death occured a few weeks before. And the Arnie Springers missed their first get-together when they were stalled with car trouble, but had the fun of joining in "Auld Lang Syne" over the phone as the clock struck 12.

Hosts for this year's reunion were Mr. and Mrs. William Milton of Pacific Beach.



SMOOTH JOINING—V. P. Livermore of GD/Convair experimental inserts connecting bars to join panels under development at GD/Convair for portable landing strips. In actual placement, panels would be staggered.

GD

ASTRONAUTICS EDITION

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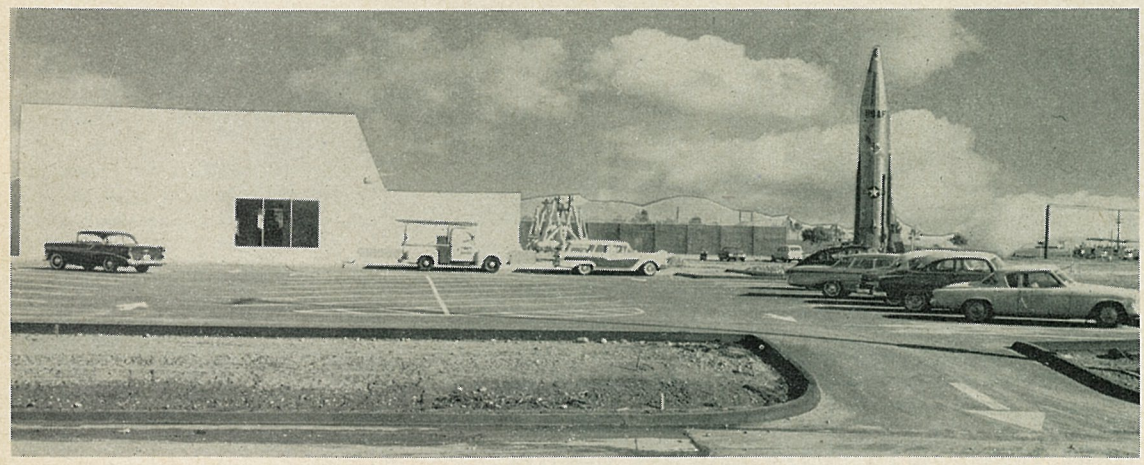

HOW IT'LL LOOK—By trick of photography, Atlas missile was "erected" in Astro Recreation area to show how real thing will look when missile actually is in place.

Atlas Missile To Be Erected As Recreation Area Display

GD/Astro Management Club has announced plans to sponsor erection of an Atlas missile in ARA Recreation Area for permanent display.

Tentative approval of plans has been obtained, and volunteers last week began readying the missile.

The Atlas to be used is an early model of the ICBM which spent its useful life undergoing batteries of engineering tests.

Destined for the "scrap heap," it had been donated by the Air Force to ARA. After erection in the Recreation Area, it will serve as a monument to GD/Astro's pioneering efforts in space and missile fields.

A. M. Dale, Dept. 536-7, is chairman of the club's display missile committee, which includes Don Crayton, R. C. Emerson, N. E. Lara, Al LeBlanc, R. A. Raffesberger, W. P. Shine and Marty Stutz.

Many other club members are assisting, and Ray Mendoza aids J. R. Mitchell, chief of employee services, in coordinating for ARA.

First steps in the project were taken last week. This included placing the missile "in stretch" near GD/Astro's silo mockup and erecting a supporting cradle under.

Subsequently, the Atlas will be lined with a plywood-plastic inner shell to provide rigidity. It will then be placed on a concrete slab southwest of ARA Clubhouse.

Volunteer work parties will accomplish as much of the project as possible. Cost of necessary contract labor and materials will be borne by ARA.

Weekend Schedule For Salvage Set

Salvage yards at GD/Convair and GD/Astro plants will be open for employee sales on the following schedule:

GD/Astro—Saturdays, Jan. 27, Feb. 10.

GD/Convair — Saturdays, Jan. 20, Feb. 3.

SCHILLING-BOUND—Members of RPIE teams line stairs of GD/Astro silo mockup prior to departure for Schilling AFB. Below is project coordination group of R. W. Shaffer, Al Mair, W. R. Gordon, C. A. Judd and W. H. Berry.

Teams Checking Schilling Sites

Early this month, four special General Dynamics / Astronautics teams left San Diego for Atlas ICBM base activation operations in Kansas.

The four-man units, called Real Property Installed Equipment (RPIE) Configuration Control teams, will verify engineering data by comparing it with equipment installed at Schilling AFB launch complexes.

Because of the high priority assigned to activating Atlas bases, a variety of agencies—Army Corps of Engineers, associate and sub-contractors as well as GD/Astronautics—poured materials and equipment into their contruction.

As operational status approaches, a review by the special GD/Astro teams will lead to preparation of a coordinated engineering release record covering all equipment installed at each facility.

This record will be maintained up-to-date using GD/Astro's data

(Continued on Page 2)

Patterson Fills New Advanced Product Posts

Four new executive appointments at General Dynamics/Astronautics have been announced by W. H. Patterson, vice president—advanced product planning.

Named are Jack D. Phelan as director of advanced product planning for electronics and space research; Frank P. Stoklas as manager—advanced products for electronics and space research; Frank A. Zylius as manager—advanced products for ballistic launch vehicles and manned space systems; and Donald W. Srull as chief of marketing analysis.

A native of Sedalia, Mo., and graduate of the University of Minnesota, Phelan has served as vice president of marketing for the Budd Company—Electronics Division. Previously, he worked for such firms as ITT Federal Labs, Collins Radio, Nelson Electric and Airform Manufacturing where he held positions in engineering and sales organizations.

Stoklas is a native of Dodge, Neb., and a graduate of the University of New Mexico. He is a transfer from GD/Electronics at Rochester where he was systems program manager. Previously he worked six years for RCA at Patrick AFB, Fla., as a systems engineer. Prior work included time

(Continued on Page 2)

Bldg. 33 Move Involves 1,200

More "elbow room" for General Dynamics/Astronautics burgeoning population at Plant 71 became available with occupancy last month of the newly-completed 171,000-sq.-ft. addition to Bldg. 33.

More than 1,200 employees, primarily in engineering departments, have already moved into the new structure or will do so in the near future, while several hundred others were involved in moves resulting directly from the availability of new working space.

A mass exodus from Bldg. 4 involved personnel from several engineering departments who took over new office or laboratory areas in Bldg. 33.

Moving, too, was educational services (Dept. 130-3) which now occupies seven classrooms in the new building, in addition to office space. The department's classrooms in Bldg. 17 continue in use.

From the fourth and fifth floors of Bldg. 3 came nine engineering groups to occupy space in Bldg. 33, and Bldg. 23 will lose trajectory lab to the new structure.

In the space-gaining doubleplay, vacated areas in Bldg. 4 became available for expanding departments in Bldg. 26, many of which have already moved into new quarters.

These included two test engineering sections and certain communication (Dept. 120) groups, all now located in Bldg. 4.

A contracts group and Centaur unit left Bldg. 26 for Bldg. 1; two Dept. 522 sections and systems design (Dept. 531) departed for Bldg. 3. Electrical design (Dept. 545) moved from Bldg. 26 to Bldg. 33.

Within Bldg. 26, moving day for several departments will mean a simple trek upstairs to the second floor. Following this plan are support logistics (Dept. 335), support documentation (Dept. 337), support planning (Dept. 305), Golden Ram (Dept. 250), support engineering (Dept. 321), field service engineering (Dept. 324), and support publications (Dept. 322).

Some 40 data processing programmers (Dept. 170) have shifted temporarily to Bldg. 19 opposite GD/Convair Plant 1.

Major factor in occupancy of the Bldg. 33 addition is consolidation of many laboratory facilities in a 45,000-sq.-ft. area along the building's east wall.

Construction of the addition was begun in July. Like the original structure, it is of rigid steel frame construction with "tilt-up" concrete walls, steel roof deck and built-up roof. It includes a 50 by 50-ft. utility core housing two 262-ton air conditioning units, electrical substations and rest rooms.

Steps Taken to Organize Disaster Control; Team and Training Program Considered

General Dynamics/Astronautics this month is taking further steps toward building up its Disaster Control and Civil Defense program, according to W. E. Bowman, manager of industrial security.

Among the first moves was appointment of A. M. Young, former guard officer at Astro, to the post of disaster control coordinator.

Over the past week special communiques have gone out to more than 250 present Astro employees who at one time or another during their careers with General Dynamics have received formal training in disaster control. Also, notices have gone to Astro employees previously designated to work in this field.

Primarily, these communiques will determine if the individual is interested in taking part in disas-

(Continued on Page 2)

Centaur Space Device Under Pt. Loma Test

Guiding Centaur through unpowered "coast" periods in space will be a control system tested extensively by General Dynamics/Astronautics on a unique device that utilizes cushions of air to create frictionless conditions.

Called a space vehicle simulator, the test device was designed and built by Astronautics. It has been in use at Point Loma for some time.

After separation from an Atlas "D" missile which will launch it into space, Centaur will enter the "coast phase" in which its powerful hydrogen engines are off and it moves only through momentum. Tests involve the control system's work during this period.

The test device in use weighs about 6,000 pounds. A 14-foot column rests on the floor with a cradle-like upper section. Into this cradle fits a 30-inch sphere of specially-processed steel. A shaft penetrates the center. Onto each end of the shaft is attached a 25-foot boom of skeletal construction. Equipment being tested is installed on one of the two booms.

Nitrogen gas forced through the base column causes the sphere to separate from the cradle a fraction of an inch. Created is a frictionless "air bearing" allowing the rig to rotate freely in

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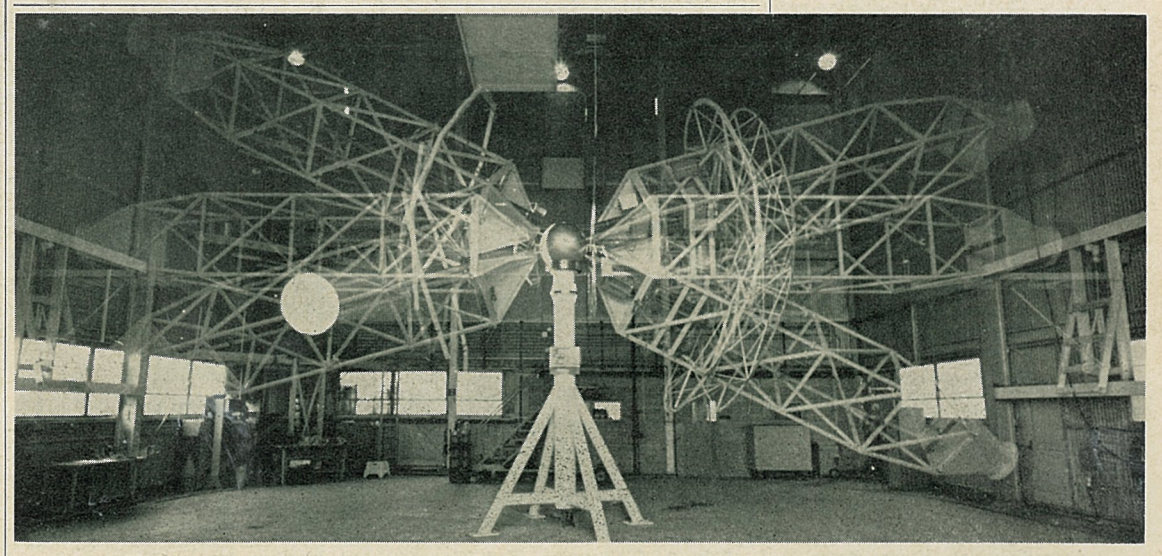

FREE-WHEELING—Multiple exposure photo shows Centaur space vehicle simulator in action, duplicating flight conditions.

Log Book Entries

Promotions

MAIN PLANT

Promotions to or within supervision effective Dec. 18.

Dept. 105-0, Advanced Product Planning: To manager of marketing research and analysis, P. Osborn.

Dept. 120-0, Communication: To asst. to director of communication, E. C. Keefer. To manager of motion pictures, John Hynd.

Dept. 130-6, Industrial Relations: To interviewer, William Okey.

Dept. 141-2, Quality Control: To process control supervisor, G. H. Schwab. To process control asst. supervisor, D. R. Miller.

Dept. 151-1, Management Systems: To change administration supervisor, M. R. Clark.

Dept. 152-0, Program Planning and Control: To change administration supervisor, J. L. Milliorn.

Dept. 155-0, Estimating: To clerical supervisor, A. C. Schwartz.

Dept. 175-0, PACE Services: To PACE program supervisor, J. B. Acton.

Dept. 191-0, General Accounting: To accounting supervisor, G. W. Robertson. To accounting asst. supervisor, W. E. Potts.

Dept. 250-5, Transportation: To transportation foreman, J. C. Rice. To transportation asst. foreman, W. C. Stubbs.

Dept. 322, Support Publications: To support publications asst. supervisor, D. J. Hallman, L. B. Settle.

Dept. 324-5, Field Engineering: To field engineering asst. supervisor, M. A. Hein, J. T. Ready Jr.

Dept. 333-2, Off-Site Logistics: To receiving and stores asst. foreman, G. L. Rafferty.

Dept. 351-2, Field Modification: To manufacturing control asst. supervisor, P. F. Sepe.

Promotions to or within supervision effective Jan. 1.

Dept. 101-7, Data Processing: To asst. group engineer, R. H. Bowen, C. H. Gutzler.

Dept. 105-0, Advanced Product Planning: To chief of marketing analysis, D. W. Srull.

Dept. 110-0, Contracts: To contract administrator, J. H. Edwards.

Dept. 141-0, Quality Control: To chief of off-site quality control, H. L. Anderson.

Dept. 510-4, Engineering Management: To asst. project engineer, L. G. Egan Jr., J. C. M. Elizalde, E. E. Lindgren, R. R. Tillett, A. J. Von Der Wische.

Dept. 511-1, Engineering Management: To asst. project engineer, R. Benzwi, J. E. Lauen, C. C. Lingenfelder.

Dept. 773-0, Missile Checkout and Acceptance: To foreman, W. J. Giesenschlag, D. K. Slingsby. To asst. foreman, F. I. Gompf, R. H. Schmidt.

AFMTC

Promotions to or within supervision effective Jan. 1.

Dept. 571, GD/Astronautics Operations: To asst. supervisor, B. J. Hendershot, C. R. Hodsden.

ALTUS AFB

Promotions to or within supervision effective Dec. 18.

Dept. 617, GD/Astronautics Operations: To chief of scheduling and analysis-base, H. W. Wagner. To launch complex supervisor, B. G. Longino, J. W. Moss. To launch complex asst. supervisor, W. G. Carlton, S. G. Hughes, C. A. Roberts. To asst. foreman, J. W. Bailey, W. K. Cagle, T. W. Clardy, L. T. Gilliam, R. O. Hanson, E. L. Harris, R. D. Haupert, J. C. Hazlett, F. H. Long, O. E. Lykins, R. R. Moore, L. L. Rudy, B. T. Whatley. To task control supervisor-base, W. E. Horner. To activation engineering asst. supervisor, M. E. Thistle Jr., R. Loraine.

Promotion to or within supervision effective Jan. 1.

To chief of quality control-base, F. E. Hinton Jr.

DYESS AFB

Promotions to or within supervision effective Dec. 18.

Dept. 618, GD/Astronautics Operations: To launch complex supervisor, C. E. Aldredge, A. M. Fader, R. R. Mills. To launch complex asst. supervisor, R. A. Wroolie. To inspection supervisor, R. E. Bowers. To inspection asst. supervisor, P. S. Byers, D. E. Graham, T. A. Langford, F. W. Stewart. To subcontractor coordination supervisor-base, W. J. McTigue. To asst. foreman, W. A. Clark, E. L. Crawford, J. P. Golden, D. A. Jerome, J. J. Owens Jr., T. V. Starcher, J. N. Wasson.

Promotions to or within supervision effective Jan. 1.

To production control asst. foreman-base, C. L. Crockett. To asst. foreman, S. R. Merryfield.

LINCOLN AFB

Promotions to or within supervision effective Dec. 18.

Dept. 616, GD/Astronautics Operations: To inspection supervisor, J. N. Trail. To inspection asst. supervisor, T. J. Bruger, J. K. Pound, D. E. Wright. To launch complex asst. supervisor, E. S. Day, H. Morgan Jr. To activation engineering asst. supervisor, F. R. Train.

PLATTSBURGH AFB

Promotions to or within supervision effective Dec. 18.

Dept. 620, GD/Astronautics Operations: To plant engineering asst. supervisor-base, A. S. Contois. To production control asst. foreman-base, E. A. Wendler Jr.

Promotions to or within supervision effective Jan. 1.

To chief of production control, C. H. Fontaine. To launch complex supervisor, J. W. Richardson. To timekeeping asst. supervisor, D. Pearce.

SCHILLING AFB

Promotions to or within supervision effective Dec. 18.

Dept. 615, GD/Astronautics Operations: To inspection supervisor, F. A. Falls. To chief of administrative services-base, G. P. Delp. To activation engineering asst. supervisor-base, M. G. Cohn. To asst. foreman, R. E. Gutzwiller, R. W. Decker.

Promotion to or within supervision effective Jan. 1.

To asst. foreman, C. T. Griffith.

SYCAMORE

Promotion to or within supervision effective Jan. 1.

Dept. 573-3, GD/Astronautics Operations: To asst. foreman, D. E. McCue.

VANDENBERG AFB

Promotions to or within supervision effective Dec. 18.

Dept. 576, GD/Astronautics Operations: To group engineer, J. H. Rusk Jr. To asst. foreman, E. Collins.

Promotion to or within supervision effective Jan. 1.

To inspection asst. supervisor, J. B. Bennett.

WALKER AFB

Promotions to or within supervision effective Dec. 18.

Dept. 619, GD/Astronautics Operations: To asst. supervisor, F. B. Thompson. To receiving and stores asst. foreman, F. L. Henrietta.

Promotions to or within supervision effective Jan. 1.

To launch complex supervisor, R. E. Gumtz, D. E. Hoegh, R. T. LeFrois. To launch complex asst. supervisor, W. A. Wigington. To inspection asst. supervisor, W. M. Booher, G. W. Davis, R. D. Markham, N. P. Snell. To asst. foreman, H. C. Scroggins.

Service Emblems

MAIN PLANT

Service emblems due during the period Jan. 1 through Jan. 15.

Twenty-five-year: Dept. 541-7, J. A. Lehman.

Twenty-year: Dept. 151-3, T. A. Bridges; Dept. 170-0, T. J. Moffett; Dept. 351-1, E. E. Homan; Dept. 453-0, G. L. Olson; Dept. 732-0, A. A. Gomez.

Fifteen-year: Dept. 130-1, M. F. Lear; Dept. 322-8, K. M. Peterson; Dept. 351-3, J. J. Graham; Dept. 545-7, H. W. Nichtern; Dept. 604-0, W. H. Mariott; Dept. 732-0, J. T. Epperly; Dept. 745-0, P. T. Gardner; Dept. 759-0, R. L. Hawkins Jr.

Ten-year: Dept. 130, R. T. Castrey, H. C. Guyne, Dale Mederis; Dept. 141-3, H. C. Cox; Dept. 191-0, Verna S. Hathaway; Dept. 193-3, Bernice C. Jones; Dept. 250, D. L. Herzer, Laverne Moore, Herbert Whitmore; Dept. 305-0, L. A. Chambers, D. N. VanEpps.

Dept. 333-3, Dorothy J. Page; Dept. 351-3, W. R. Poulton; Dept. 480-0, F. L. Erwin; Dept. 522-4, J. A. Moore; Dept. 547-3, W. F. Brassell; Dept. 591-5, B. W. Bostad; Dept. 732-0, S. F. Martin; Dept. 820-0, T. B. Carter Sr.; Dept. 833-1, M. A. Shamhart.

DYESS AFB

Fifteen-year: Dept. 618, Joseph Boyd, C. C. Price.

LINCOLN AFB

Twenty-year: Dept. 616-1, F. D. Weismantel.

SCHILLING AFB

Ten-year: Dept. 615-4, R. J. Pixley.

SYCAMORE

Fifteen-year: Dept. 573-3, H. C. Hetrick.

Ten-year: Dept. 573-4, R. N. Dunkel.

VANDENBERG AFB

Fifteen-year: Dept. 576-3, J. W. Boorom.

Ten-year: Dept. 576-3, W. T. Mitchell.

WARREN AFB

Twenty-year: Dept. 611-0, S. R. Stager Jr.

Personals

MAIN PLANT

We would like to thank our many Astronautics friends for their comforting acts during the recent loss to our family. Your kind expressions of sympathy are gratefully acknowledged and deeply appreciated.

Eric Callard, Dept. 141-1
Don Callard, Dept. 144-2
John Callard, Dept. 144-2.

Births

MAIN PLANT

DUVALL—Son, Kevin Layne, 7 lbs. 13 oz., born Nov. 27 to Mr. and Mrs. C. W. Duvall, Dept. 143-3.

KOCH—Twin sons: Shawn Albert, 6 lbs. 10½ oz., and David Allmers, 7 lbs. 5 oz., born Nov. 21 to Mr. and Mrs. A. A. Koch, Dept. 597-1.

ROBERTS—Son, Jonathan Edward, 8 lbs. 6 oz., born Dec. 15 to Mr. and Mrs. D. E. Roberts, Dept. 545-6.

SHELDON—Son, Shaun Lance, 6 lbs. 6 oz., born Nov. 28 to Mr. and Mrs. Arthur Sheldon, Dept. 833-3.

TAYLOR—Son, Raymond Todd, 6 lbs. 7 oz., born Dec. 6 to Mr. and Mrs. Earnest Taylor, Dept. 250-4.

SCHILLING AFB

NYBERG—Daughter, Kimberly Kay, 7 lbs. 1½ oz., born Nov. 18 to Mr. and Mrs. K. E. Nyberg, Dept. 615-7.

PRIER—Daughter, Susan Marie, 8 lbs. 2 oz., born Dec. 31 to Mr. and Mrs. Gilbert Prier, Dept. 615-3.

WALKER AFB

CHRYSLER—Daughter, Linda Gail, 6 lbs. 12½ oz., born Dec. 1 to Mr. and Mrs. R. T. Chrysler, Dept. 619-3.

General Dynamics NEWS

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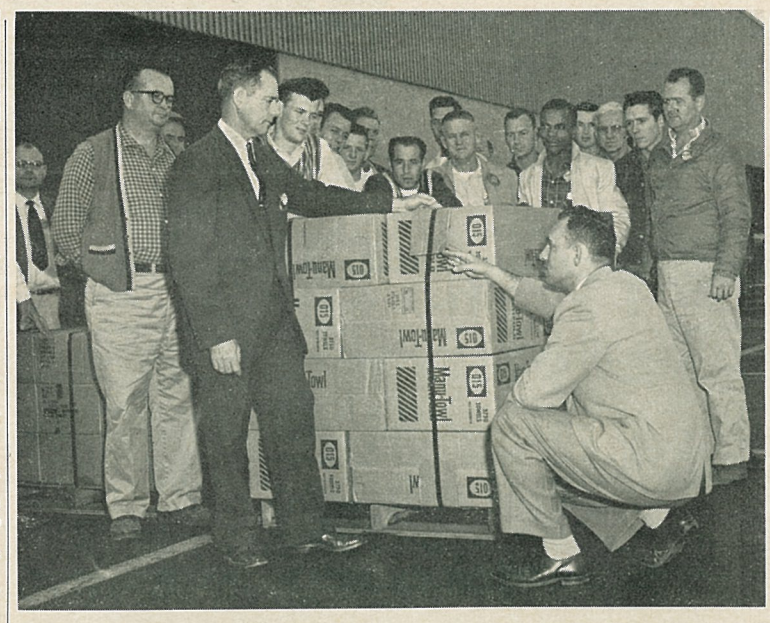


RIGHT WAY—Instructor Fred Sevey of GD/Astro educational services, discusses proper methods of pallet loading with W. F. Cogan, shipping assistant foreman, as members of materials handling class look on. Class aims at improving material handling techniques. Story on page 3.

Steps Taken to Organize Disaster Control; Team and Training Program Considered

(Continued from Page 1)

ter control activities at Astro and if he or she would like additional training, if necessary.

At the same time, 11 key Astro officials, members of the disaster control staff, have been asked to appoint representatives of their functions to begin concentrated efforts toward further implementation of the program at Astro.

Among plans for the organization are training sessions to indoctrinate participants, the acquisition of special equipment and facilities, and familiarization of all employees with the overall plan.

Young this week asked that employees not contacted who have had formal training in disaster control get in touch with him if they are interested in participating in the program in the near future. He may be reached at ext. 2644.

As a service to employees, the disaster control office is making available a special packet of material designated primarily for home use. It includes detailed instructions and suggestions for family training and familiarization with procedures to follow in emergencies and disasters.

Noteworthy are booklets dealing with radiation and explaining nuclear explosions, etc.

Beginning tomorrow (Jan. 18) and continuing for approximately one week booklets will be available to main plant employees leaving the plant. Material will be available at various gates on succeeding days. Special displays will be set up near the exit gate.

Sycamore Canyon and other off-site locations in the San Diego area will arrange to make packets available at their own discretion.

Teams Checking Schilling Sites

(Continued from Page 1)

processing facilities in San Diego. Total documentation will provide information to maintain and support the system during the balance of the installation and checkout period, and following acceptance of the Atlas facilities by the Air Force.

While the project is coordinated by configuration control section of GD/Astro change administration (Dept. 151-2), team members represent several departments.

Plant engineering (Dept. 250) members are charged with verification of equipment requiring maintenance; while product support (Dept. 337) representatives will up date master equipment lists for spare parts provisioning.

RPIE engineering data for preparation of the final engineering release record will be verified by team members from operations engineering (Dept. 531).

"This is a team effort all the way," said R. W. Shaffer, project administrator for configuration control. "After our job at Schilling AFB is done, teams will move to other 'F'-series bases, and later undertake similar work at 'E'-series Atlas installations."

Schedules call for some RPIE Configuration Control teams to work at Schilling AFB until late March. In mid-February, work at Lincoln AFB complexes will get under way.

Deaths

MAIN PLANT

CARLSEN—Cardwell F., Dept. 143-5. Died Dec. 16. Survived by wife, Beatrice, and two children.

MONGER—Mary Ellen, Dept. 101-6. Died Dec. 13. Survived by husband, Alva, and two sons.

RICKETTS—Gordon T., Dept. 758-0. Died Dec. 21. Survived by wife, Helen, and daughter, Ida.

SCHULTE—F. E., Dept. 143-7. Died Dec. 15. Survived by wife, Hazel, Dept. 220-3.

Keefer, Hynd Named To New Astro Posts

New assignments for two key communication department executives at General Dynamics/Astronautics have been announced by Charles T. Newton, director of communication.

Eugene C. Keefer, veteran manager of motion pictures and television, is now assistant to the communication director. John Hynd assumes Keefer's former post.

"Keefer will have general cognizance over the day-to-day operations of the communication department, with special attention to improving operational methods and costs within various sections," Newton said.

Altus ARA Cage Team Topples All-Stars

ALTUS AFB—An Astro-sponsored ARA basketball team here captured a pre-season contest and took third in a local cage tournament.

Paced by a 20-point barrage by J. W. Moore and 14 points by L. Martinez and an additional 10 points by S. Robertson, the team polished off the Altus All-Stars, 47-34. Victory brought an invitation to the annual Blair (Okla.) invitational tournament.

Seven teams took part. In the final game Blair won a 55-35 victory, although Martinez accounted for 10 Astro points, with S. Storie and R. Hickman adding eight each.

300 at Edwards Give $1,185 For Families

EDWARDS RS — Seven families, each with several children, were "adopted" at Christmas by GD/Astro employees here.

In lieu of exchanging gifts, employees contributed to a special fund. After $585 was raised, Astro Management Club here agreed to donate $2 for every $1 raised by employees above the $585. Eventually $1,185 was raised among only 300 employees.

Centaur Space Device Tested

(Continued from Page 1)

any direction, just as Centaur does during coast periods.

Power from ten small hydrogen peroxide engines on the test unit are switched on and off by the autopilot control system. In space these engines would make delicate attitude adjustments.

Engineers study the vehicle's response to the attitude control engines and control system under these simulated "operational" conditions.

Also mounted on the booms are two sun detectors and a sun tracker (position detector). These keep Centaur's aft end pointed to the sun during coast periods to prevent hydrogen fuel from overheating and returning to gas.

Astronautics technicians duplicate sunlight conditions through use of a five-foot anti-aircraft searchlight, with a smaller spotlight utilized to activate the sun tracker.

Centaur launch vehicles are being built by Astronautics for the National Aeronautics and Space Administration.

Patterson Names Four To New Exec Posts

(Continued from Page 1)

at the Motorola Research Laboratory, Radio Station KOB and the Eggert Radio Institute.

Zylius has been with Astronautics since 1957, most recently as an advanced project engineer and before that as a design specialist and a senior research engineer. Born in Chicago, he is a graduate of Columbia University. From 1951 until 1957 he was a senior project engineer at the Navy Training Devices Center, Pt. Washington, N.Y.

Srull holds BS and MA degrees from the University of Michigan and hails from Dearborn, Mich. He joined Convair in 1952 and worked as a research engineer, senior research engineer, design specialist and chief of operational analysis before joining Astro last month.

Data Processing Classes Offered

Data processing classes are open to interested General Dynamics people in both day and evening programs of San Diego City College's spring semester.

Evening courses include introduction to data processing, punch card machine and computer programming classes. The introductory course will be offered during the day.

Spring semester registration for new students begins today (Jan. 17) and continues through Jan. 29. Classes begin Jan. 30.

Information on City College courses is available at educational services offices at GD/Convair and GD/Astro.

Movie on Detecting Cancer Scheduled

Special showings of cancer detection movies for women employees of General Dynamics/Astronautics have been arranged by educational services (Dept. 130-3) at the request of Dr. A. J. Bellanca, chief physician.

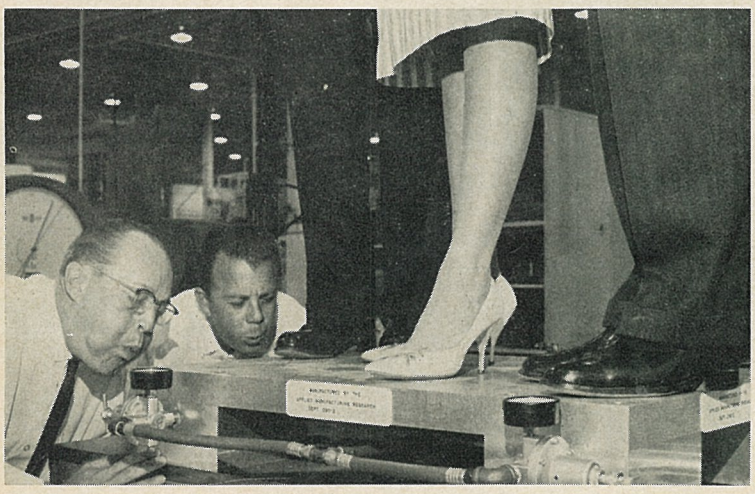
They will be shown to women only in Room 12, Bldg. 33 at 11:05 a.m. on Jan. 23, 25, 30 and Feb. 1; and at 12:05 p.m. on Feb. 6, 8, 13 and 15. Showings take about 25 minutes.

Missile Engineer Will Teach Course

Dan Buckley, GD/Astronautics missile electronic design engineer, will teach a course in Industrial Electronics sponsored by San Diego City College opening Jan. 30 at Kearny Mesa High.

Astro employees may enroll by attending the first class at 7 p.m. Classes will be held from 7 to 9:30 p.m., Tuesdays and Thursdays.

RIDING ON AIR—Friction-free bearing developed at GD/Astronautics is demonstrated. At left Barbara Barbat whirls on disk built for human requirements group. Center: Pat Nobles is "towed" by T. A. Herbert, using thread. Right: Barbara moves 15,000-lb. load, supported by 20-in.-square bearing, with finger push.



SMOOTH SAILING—Inventors T. A. Herbert and Earl Christian use breath to propel "passengers" standing on friction-free bearing device developed at GD/Astro. New concept is based on "floating" heavy objects on thin cushion of air or other inert gas. Compressed air is fed to bearings at low pressure.

'Friction Free' Bearings Produced Through Use of Compressed Air

Imagine moving a loaded railroad car with one hand, or shifting a refrigerator at the touch of a finger!

Recent disclosure of a friction-free bearing and levitation device produced by General Dynamics/Astronautics applied manufacturing research and process development (Dept. 290) brings these and other Samson-like feats into reality.

In a joint effort, E. L. Christian, project engineer, and T. A. Herbert, manufacturing research supervisor, conceived the idea for the bearing, and early last year designed and built a prototype.

From this, several models have evolved, and found application in tasks ranging from welding to space-age research.

The bearings eliminate friction by "floating" objects to be moved on a thin cushion of air or other inert gas. No oil or other lubricant is ever needed because surfaces are always separated by a layer of air while in motion.

"Compressed air from factory supply or from portable bottles is fed to bearings at low pressure," Christian explained. "On each bearing surface are a series of small channels or 'tributaries' which trap the air to force the bearing away from the surface on which it rides."

A 20-by-20-inch test bearing recently supported a 15,000-pound load, which—after starting inertia was overcome—required only ounces of force to move freely.

Although the load was unbalanced, exactly .0001-inch clearance was maintained between bearing and surface.

In an early application, a flat friction-free bearing was used to support a 770-pound steel plate on a drill press work table. One man then manipulated the heavy plate while drilling a multiple-hole pattern.

Production-scale welding of extremely thin materials became possible when friction-free bearings were installed in a new carriage built for a straight-line welder.

Where the original carriage was moved over 10 roller bearings by a gear drive, the new model floats along on four air bearings propelled by a rubber roller.

The smooth-riding "airborne" carriage permits welding of material only .003-inches thick—actually thinner than inherent movement through vibration, "flutter" and back-lash found in the original device.

The air bearings quickly caught the eye of GD/Astro human requirements group (Dept. 147-6) which had long sought a means to study human ability to control weight (perform simple tasks) without the attraction of gravity.

Christian supplied them with two "space scooters"—a stool and matching work table mounted on friction-free "feet." When stool and table are placed on a smooth surface, test subjects find the bearing-supported scooters skid crazily at their slightest shift or radical movement.

The coefficient of friction for the scooters (force required to keep them in motion) was less than .00000167 (less than one-tenth gram) as measured on the most delicate scale available at the time of testing.

A rotary bearing, built for the same group, is used in related research.

A modified version of an air bearing almost 12 feet in diameter is now in use at the bottom of GD/Astro's hydrochemical forming tank. It acts as an air cushion to protect the pool structure from damage during forming operations.

"By increasing the bearing surface area, and the pressure of air or gas it receives, there is no limit to the amount of weight friction-free bearings can support," said Herbert.

Heavy machinery can be shifted easily by jacking it up and slipping a friction-free bearing under each corner as a levitation device. Bulldozers, factory equipment and even missiles can then be moved about easily by only one man.

In a test of one bearing, 3,000 pounds were towed along by one man pulling on a piece of sewing thread, while in another demonstration, an equivalent weight glided smoothly along with nothing more than the inventors' breath as a motive force.

Proper Handling of Materials Emphasized in New Course

Proper handling of materials—a subject whose significance is often overlooked in the fast pace set by modern production methods—is receiving new emphasis at General Dynamics/Astronautics.

At the request of F. J. Parker, GD/Astro's chief of stores and traffic, Fred Sevey of educational services (Dept. 130-3) now conducts regular classes in the subject.

"Of every manufacturing dollar some 22 cents are spent on material handling—processing, moving and storing the product," Parker explained. "Damage to that product at any time before it reaches the customer can skyrocket production costs."

While the first students enrolled in the class are material (Dept. 833) employees directly concerned with material handling as their primary job, Parker emphasized that all GD/Astro employees have definite responsibilities.

"The man who stacks a heavy box on top of fragile items is as guilty of poor handling procedure as the fork-lift operator who drops a case of fragile instruments," he said. "Material handling involves everyone from management on down."

This responsibility applies not only to perfect units ready for delivery to the customer. Frequently mishandled are new items tagged by inspectors with a "failure and consumption inspection report" (IR form).

"Appearance of this sheaf of papers on an item doesn't mean the unit is worthless," Parker stressed. "Often only a few cents' worth of repairs can place it in perfect condition, and it should be handled accordingly."

Sevey prepared the 7½-hour course with the assistance of Marvin Gutzka and A. J. Talberg of applied manufacturing research and process development (Dept. 290). They have also assisted during class sessions which are held daily, five days a week.

Class subjects include handling methods, packaging, loading, cleanliness, equipment, transportation and safety.

"But our main objective is to get students to think," Sevey said. "Ever notice how the bread is always placed at the top of your grocery bag? That's common sense — and good material handling."

By mid-February, some 250 material department employees will have attended the classes. After that time, the course will be made available to other departments.

BRIGHT EXAMPLE — Sandra Pearson, 17, daughter of GD/Astro's Walter Pearson (Dept. 250-1) displays sparkle which helped win "Outstanding Senior" title in recent Heartland Parade. Active in many extracurricular activities, Sandra also is honor student at El Cajon High.

QUICK CHECK—R. B. Stangl, chief of vendor research and evaluation, checks out product in GD/Fort Worth's vendor microfilm library. Machine can "thumb" 200 pages a second.

'TV' Micro Reader Gives Fast Information On Capabilities of Thousands of Vendors

Buyers and engineers at GD/Fort Worth can find out about a vendor and his product simply by switching on "television" and viewing a microfilmed report.

The "TV" is a reader in which a 4x4-inch cartridge, containing literally volumes of microfilmed information, can be fed and read.

A buyer seeking information on "terrain-clearance radar" systems, for example, would insert the appropriate cartridge containing manufacturers of this system. After pinpointing his reference, the buyer simply pushes a button and the reader flips through microfilmed pages to the desired page. A photo reproduction of the page may be obtained in seconds.

Over 70,000 pages of equipment information are now microfilmed, catalogued and cross-indexed by product and company.

To supplement the product/supplier information available from the vendor microfilm file, GD/FW will eventually add supplier evaluation ratings and other pertinent vendor information gathered from a supplier evaluation program.

Similar files at GD/Convair, GD/Astronautics and GD/Pomona Divisions will also swell during coming months due to supplier evaluation programs.

"Each division standardized questionnaires to obtain data on all vendors they've used or might use in the future," explained D. C. Wren, vendor evaluation analyst.

"Information concerning a company's finances, management structure, quality control, engineering talent, past performance, present products, and countless other facts are evaluated, then passed on to other divisions."

Wren feels that GD/FW's vendor microfilm library might well contain detailed information on as many as 50,000 vendors in the near future.

SEA-PAINTERS—Two GD/FW electronics technicians who are also accomplished artists put finishing touches on massive seascape mural in local restaurant. They are John E. Johnson, on ladder, and Charles Herman, both Dept. 75.

Landlubbers

GD/Fort Worth Electricians Painting Seascape in Leisure

Two GD/Fort Worth landlubbers are putting finishing touches on a gigantic seascape mural at Zuider Zee Seafood Restaurant, and their artistry already is attracting favorable critical recognition.

The two Air Force veterans, Charles Herman and John E. Johnson, are second-shift electronics technicians in Dept. 75.

They were commissioned to paint the mural by the restaurant's owner after he had seen other examples of their work.

The mural, 45 feet long and eight feet high, depicts a rocky sea coast, a lighthouse, a sailboat in the distance—and a little boy, who's "lost in all those rocks." Sea gulls soar overhead.

Herman and Johnson became friends through a chance meeting at GD/FW about a year ago.

Both men share a lifelong interest in art. Herman recalls that his first "professional" work in painting was his job as staff artist on the newspaper at Lowry AFB in Denver. He served in the Air Force from 1954 through 1957, coming to GD/FW the following year.

Johnson studied art throughout his school days in Austin, his home town. He served in the Air Force from 1956 through 1960, and joined GD/FW soon after his discharge.

Hinz to Head Office at L.A.

A new General Dynamics Corporation office for the Los Angeles area has been opened to handle program development activities with military and government agencies, K. M. Smith, General Dynamics vice president-program development, announced.

Earl R. Hinz is manager of the office, located at 2100 Sepulveda Blvd. Hinz has been manager of Los Angeles office of General Dynamics/Convair division since it opened last January.

His staff will maintain corporate liaison with West Coast operations of the Air Force, Navy, Army, National Aeronautics and Space Administration, Federal Aviation Agency.

Hinz joined Convair in 1950 as senior engineer and transferred to Astronautics division in 1958 as design specialist in the advanced systems sub-department of engineering. He directed preliminary design and systems studies for advanced applications of the Atlas missile and Centaur.

WINNER—"Little Joan" won CRA Camera Club print-of-year honors at San Diego for Ron Ainsworth, Dept. 6, in annual judging. Photo was shot at 1/5 sec., F/5.6.

Electronic Theory And Math Courses Offered For Astro

Several San Diego City College courses will be offered in classes to be taught at General Dynamics/Astronautics main plant and Plant 2 beginning late this month.

Students are now being accepted. Plant 71 employees may call Laura, ext. 1933 to enroll, while Plant 2 registration is handled by Helen, ext. 1182. Classes will be taught on employees' own time.

At the main plant, Basic Electronic Theory and Components will be offered from 2 to 4:30 p.m., Monday and Wednesday beginning Jan. 29.

The following courses, with times in parentheses, will be offered Tuesday and Thursday: Optical Tooling (4 to 6); Basic Electronic Theory (4:30 to 7); Basic Electronic Theory (5 to 7:30); Aircraft Machine Shop Math (4 to 6:30); Basic Electronic Theory and Components (4 to 6:30); and Blueprint Reading (4 to 6).

Courses at Plant 2 will be taught in Bldg. 28. Effective Writing will meet from 4:45 to 7:15 p.m., Mondays; Industrial Math on Wednesdays, 4:30 to 7 p.m.; and Basic Electronics from 4:30 to 7 p.m. on Mondays and Wednesdays.

Classes in both basic and advanced Blueprint Reading will be held from 4:30 to 6:30 p.m., Tuesdays and Thursdays at Plant 2.

Documentation Group to Meet

General Dynamics members of the newly-formed San Diego Chapter of the American Documentation Institute may make reservations now for the first quarterly meeting.

Date of the first session is Saturday, Jan. 27, at Doric Hotel in Point Loma.

Panel discusion on "What is Documentation?" will be from 3:30-5 p.m. with Thurber Moffett, management systems specialist, GD/Astro, a panel member.

Business meeting will be at 4:45 p.m.; social hour, 5-6 p.m.; dinner and program, 6-8 p.m.

Frank Marzocco of Systems Development Corp. will be dinner speaker on "How Modern Computers Analyze and Digest Thought Processes."

Over half of the group's present membership are General Dynamics people with two General Dynamics men holding offices, W. T. Morris, Astro engineering librarian, secretary; and L. E. Leonard, General Atomic assistant librarian, treasurer.

Reservations and membership information may be had by contacting chief librarians at GD/Astro, ext. 1073, or GD/Convair, ext. 1543.

880 Jet Hits 697 mph Ground Speed During Flight to Florida

A Delta Air Lines Convair 880 jet transport set an official intercity speed record of two hours, one minute, the first of this month between Chicago and Miami.

The Convair jetliner averaged 625 miles per hour over the 1,259-mile route. Aided by a tailwind which at times reached 87 knots, the passenger jet reached a top ground speed of 697 miles per hour between Louisville and Atlanta. Altitude was 29,000 feet.

There were 65 passengers and crew of six aboard.

In other Convair 880 activities recently, Northeast Airlines carried 1,634 passengers on 880 flights during a 24-hour span. Twenty-two flights scheduled Dec. 21 averaged 72 passengers to a flight.

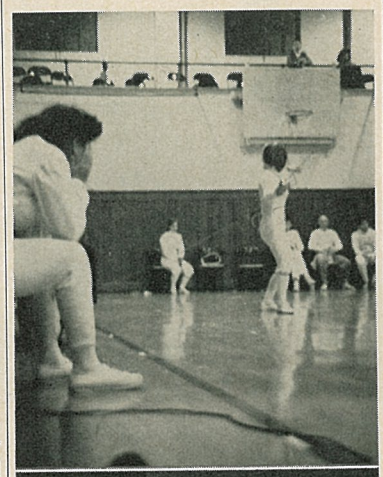
SAKE TIME—John W. Knebel, GD/Convair test pilot, and his wife (left) are greeted in traditional Japanese fashion at annual World Airlines Meeting in Las Vegas. Japan Air Lines hostess Fumiko Takakusu serves sake to John Geddes (center) of Pasadena and Dick Yamashita, JAL assistant sales promotion coordinator.

Save Material — Don't Throw Your Job Away!

En Garde!

'Electrically Wired' Fencers Cross Foils in GD Tourney

More than 50 fencers representing 11 clubs in Southern California took part in the San Diego Invitational Fencing Tournament sponsored last month by the joint ARA-CRA Fencing Club.



Barbara Proppe, Astro daughter, holds spectator attention.

Held at the downtown YWCA, the meet attracted 31 men and 23 women contestants to events running from 1 p.m. until late evening. Finals and semi-finals in the all-foil competition were fenced with electrical scoring equipment for split-second scoring.

Although an internationally popular sport, fencing has its roots deep in history when skill with a sword was the best available "life insurance."

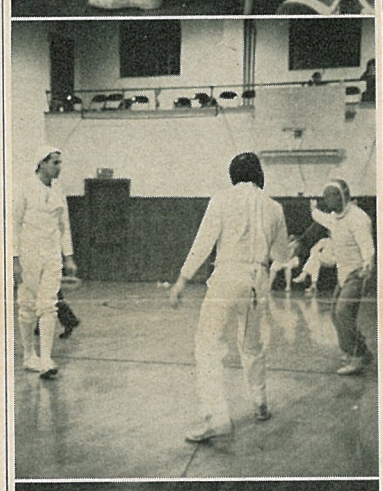
Since then, swordsmanship has become a formal athletic contest with rigidly defined rules for use of one of three weapons.

The foil, a light weapon with flexible blade, is an outgrowth of the earlier "court sword."

The epee is a modernized rapier with stiff rectangular blade, while the sabre — which grew from the early broadsword and later cavalry weapon—is slender and flexible for use as a slashing weapon.

Ray McNamara, president of ARA-CRA fencers, discusses bout with Olympic fencer Maxine Mitchell. At right is Audrey Knauer.

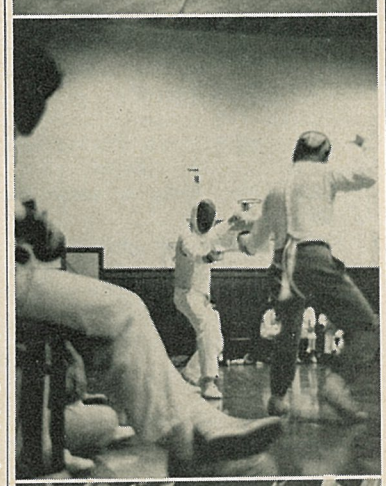
"Modern fencing bears little resemblance to movie 'swash-buckling,'" explained Mike Hurley, ARA commissioner. "Contestants face each other on a six-by-40-foot strip (no furniture allowed) under the eyes of a bout director who serves as judge. Masks and heavy vests are for protection."



Astro's Mike Hurley, as bout director, keeps close eye on action.

Because of the sport's extreme speed which makes judging difficult, an electrical scoring system has been adapted to foil and epee contests. Fencers and their weapons are "wired" to an alarm which sounds to indicate scoring contacts.

The ARA-CRA club now lists about 40 employees and dependents, with members meeting each Friday from 7:30 to 11 p.m. at the San Diego YWCA for practice. Equipment is furnished by the club.

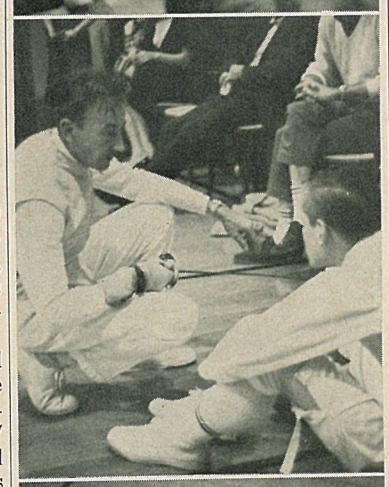


L. E. "Jeep" LaMont faces Capt. Hart Kait, USN.

Ray McNamara is club president, and Pete Beyrer is CRA commissioner.

The recent club-sponsored tournament is one of the largest fencing events of its type in the area and attracted teams from colleges and clubs throughout the southern part of the state.

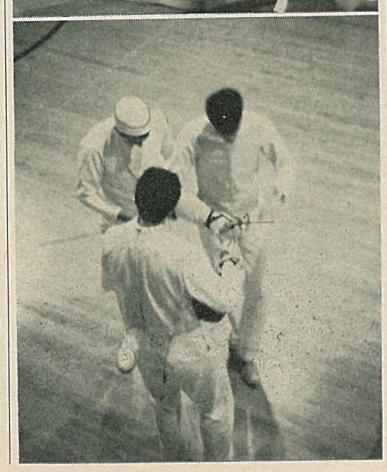
Barbara Proppe, GD/Astro daughter, won a second-place trophy in the women's event, and Hurley, despite serving as bout director for numerous events and figuring prominently in tournament organization, placed fifth in men's finals.



LaMont (Astro Los Angeles office) advises young fencer.

"Both beginners and advanced fencers are welcome at the club's meetings," Hurley said. "Interested employees may contact me at GD/Astro ext. 2857, or Beyrer, GD/Convair ext. 1245, for additional information.

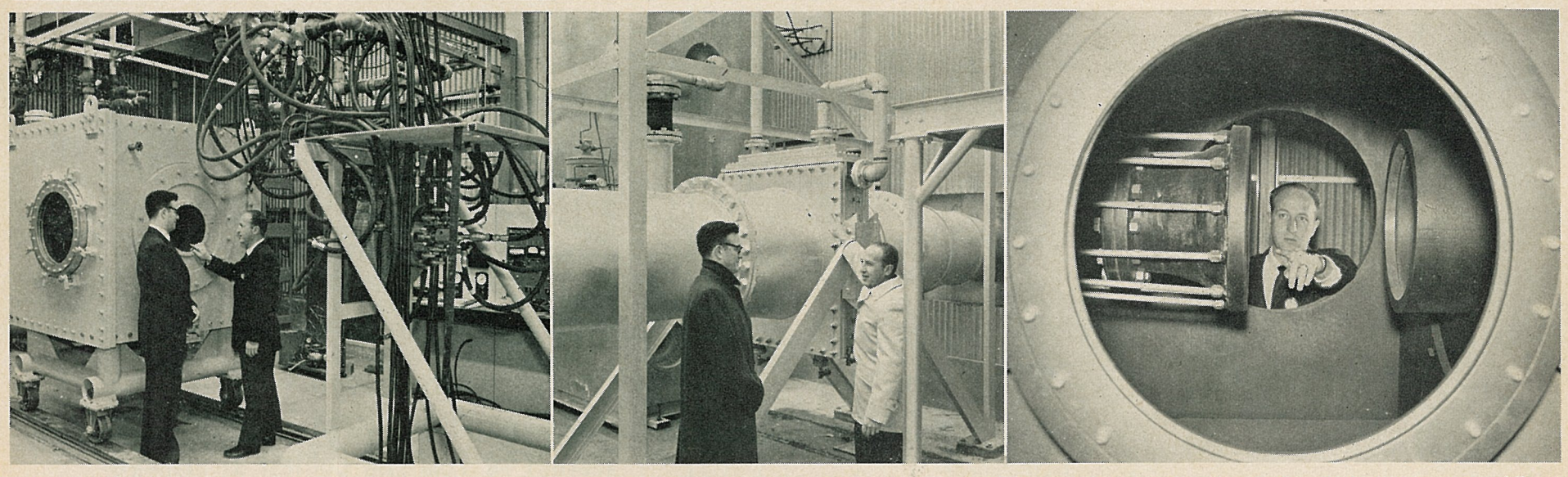
Employees in the Los Angeles area practice the sport under direction of GD/Astro's L. E. "Jeep" LaMont (Dept. 143-5).



Hurley checks electrical scoring during match.

FORTY-FOUR SETS FREIGHT RECORD

Canadair Limited's Forty-Four turbo-prop, in service with Flying Tiger Lines, recently smashed the national record for largest single load of air-freight ever flown transcontinentally when it moved 64,744 pounds of "pay-load" from Detroit to Los Angeles.



HOT WINDS—Hyperthermal Research Facility goes into service this month at GD/Fort Worth. At left, Bob Stevens, project engineer, and H. D. Cooles, design engineer, inspect unit. In center, Stevens points to steam injection system, while at right he indicates "torture chamber" where space plane models will be suspended.

GD/Pomona First Named Guided Missile Division

(This is installment No. 75 in a continuing history of General Dynamics products. It concludes narrative regarding development of Terrier missile.)

Early Terrier production was carried on at San Diego in a reactivated section of Plant 2 until a separate Guided Missile Division (Convair, Division 3) was organized in March, 1953.

Still in infancy stage, the missile industry was given a sharp forward thrust when the Naval Bureau of Ordnance contracted to build the first fully-integrated missile production center in America on a Pomona site owned by Convair.

Ground for the new facility was broken Aug. 6, 1951, and authority for operation placed under the direction of Convair.

The engineering building was ready for preliminary use July 31, 1952. Gradual relocation of related personnel and equipment took place during the next year until the manufacturing building opened for operation in mid-1953.

C. F. Horne, now president of GD/Electronics and GD/Pomona, assumed responsibility for the division's direction July 15, 1953.

Renamed Pomona Division, the original plant was built on 141-acre grounds with 1,286,000 sq. ft. of floor space. The 17-acre manufacturing building was entirely air-conditioned because of the care required in making missiles. Final assembly was conducted in a dust-free room entered only through double-doors.

During early stages of Terrier development, Convair worked independently on another Navy anti-aircraft missile, the Lark. This program originated in the spring of 1945. Vultee Field submitted a preliminary design proposal to the Bureau of Aeronautics in May and received a letter of intent contract June 23. (Fairchild Aircraft was also a Lark contractor and worked separately on developing the missile.)

Convair's Lark (XSAM-N-4) was approximately 16-ft. long with broad cruciform wings and smaller tail fins. Powered by an RMI liquid (acid and analyn) rocket motor, a target-seeking system was developed by Raytheon Manufacturing Co.

Convair designed the control system and auto pilot and moveable wing with tail-fin trimming.

More than 100 of the missiles which featured two booster JATO bottles mounted in a drop-off tail ring, were built and tested. The contract was terminated in 1948 when the Aeronautics Bureau was removed as an anti-aircraft agency.

Dynamics Men Head Society

General Dynamics engineers hold top posts in the Aerospace Electrical Society of San Diego following reecnt election of officers.

E. F. Kotnik, GD/Convair assistant project engineer, heads the group as president for the coming year. T. W. Ochodnicky, engineering forecasts and estimates supervisor, and W. T. Dorrance, chief aerospace systems engineer, both of GD/Convair, are vice president and secretary respectively.

Top left: T. W. Ochodnicky; top right: E. F. Kotnick; lower left: C. F. McCabe; lower right: W. T. Dorrance.

C. F. McCabe, assistant chief engineer electrical design at GD/Astronautics, is incoming treasurer.

All of the newly-elected officers have an average experience in the aerospace industry of 20 years each. Kotnik has been with GD/Convair for more than 20 years in various line and staff assignments on electrical equipment and system developments from the PBY to the four-engine jet commercial programs.

Other General Dynamics men serving on the executive committee are C. G. Erickson, D. G. Wilson, H. Nicholas of GD/Astro; A. A. Fabbri and E. R. Gauthier of GD/Convair.

First activity for 1962 will be as a sponsoring society of the coming National Engineers week slated for next month.

Information on the local chapter may be obtained from Kotnik, ext. 2432; Ochodnicky, ext. 1164, both Plant 1, GD/Convair; or McCabe, ext. 2244, Astro main plant.

Hours of Poll Tax Collections Set

Poll tax receipts will be on sale in the company cafeteria from 11 a.m. to 1 p.m. and from 3 to 4 p.m. on Jan. 24, 25, 26 at GD/FW.

Representatives from the office of Reed Stewart, county tax assessor and collector, will be available during these hours only.

Employees must use this service only during their lunch period or either before or after regular working hours.

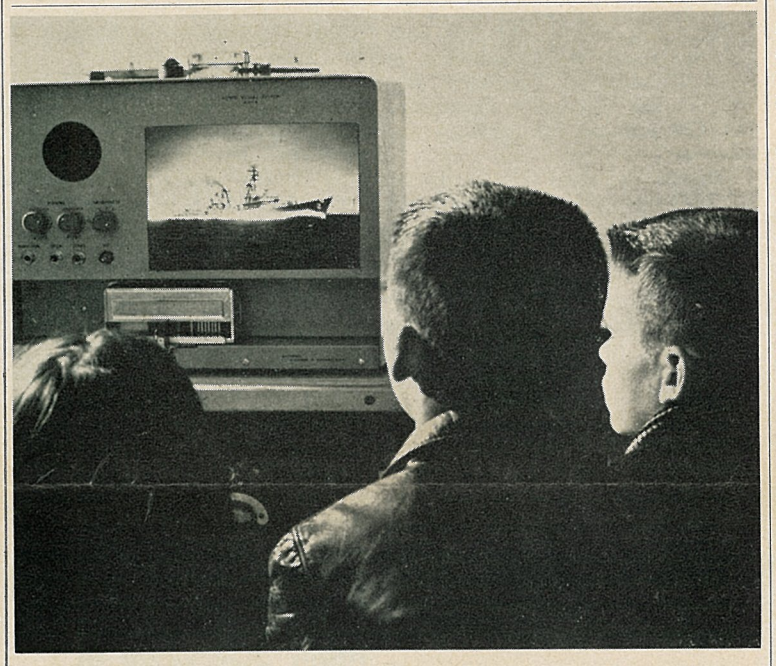
A spokesman from the tax assessor's office said sales would begin and end promptly at the designated hours.

ES Reaches Convair By Special Delivery

Two Empolyee Suggestion originators at GD/Convair didn't trust to luck to see that their ideas reached the right parties.

Cost reduction section received the suggestion form via registered, special delivery mail—with 78 cents postage attached!

In spite of extra handling care, it still took three days (over a recent weekend) for delivery.



WELCOME ABOARD—Youngsters watch audio-visual production packaged by GD/Pomona that explains operation of USS Charles F. Adams (DDG-2), Tartar-armed destroyer.

Illustrated, Too

Missile Destroyer Story 'Told' In Ten Different Languages

The guided missile destroyer USS Charles F. Adams, which left recently for an extended European tour, is equipped to tell her story in 10 different languages.

The unique presentation is an audio-visual package prepared by General Dynamics/Pomona at the request of the ship's skipper, Cdr. Bob Munroe Jr. Nortronics Division of Northrop Corporation, which produced the audio-visual equipment used to help check out the ship's guided missile system, also participated.

The package, delivered to Cdr. Munroe three days before the Adams departed Charleston, S. C., for Europe, included 56 slides that show what makes the ship tick. Also included were 10 accompanying tape recordings in 10 different languages.

The tapes were translated and narrated almost exclusively by GD/Pomona personnel. The only exception was the tape in Portuguese, which was translated by J. A. Pomeroy (Dept. 7) and Leonard Pronko, professor of romance languages at Claremont Men's College. Pronko also narrated this tape.

Tapes were also prepared in Swedish, Danish, Dutch, German, French, Spanish, Italian, Greek and English.

Oscar Staverfield (Dept. 6) prepared and narrated the tape in Swedish, and the Danish version was translated and narrated by W. E. Green (Dept. 7). The English version was narrated by A. E. Lambert (Dept. 3).

The other tapes, with the narrator listed first, were prepared by: Dutch, L. T. De Roos and R. M. Mees (both Dept. 6); German, Alfred Beck, Dr. H. E. Trucks and Mrs. Carolyn E. McConnehey (all Dept. 6); French, F. D. Craig and C. E. Angelici (both Dept. 6); Spanish, J. A. Pomeroy (Dept. 7) and A. J. Chippendale Jr. (Dept. 6); Italian, L. N. Di Pinto, Jules Jonas (both narrators) and Ettore Buttora (all Dept. 6); and Greek, Spyros Daoussis (Dept. 6) and J. N. Constant (Dept. 7).

When the Adams stops at various ports in Europe, many visitors will be welcomed aboard. They will first see the audio-visual presentation in their own language, and will then make a physical tour of the ship.

The Tartar surface-to-air missile was developed and is being produced at General Dynamics/Pomona.

"You gotta admit Casey's a real competitor."

FW's New Wind Tunnel Will Simulate Speeds And Heat of Re-entry

A space-age "wind tunnel" for simulating Mach 13 speeds and thermal environment temperatures as high as 15,000 degrees Fahrenheit went into operation at GD/Fort Worth this month.

The new Hyperthermal Research Facility (HRF), located south of experimental building, will be used by GD/FW aerothermodynamics engineers to help solve problems missiles, satellites and other space vehicles face when re-entering the earth's atmosphere.

"HRF is one of the few facilities of its type in the country," said Bob Stevens, project engineer. "It differs from a regular wind tunnel in that it can be used to simulate not only extreme speeds, but the terrific heat generated by re-entry."

A heat-producing plasma generator (so called because a gas becomes "plasma" when heated to extreme temperatures) is nerve-center of the facility. Bottled nitrogen is pumped into the generator and heated instantly as it passes through a high intensity electric arc. Nearly two million watts of electric power can be supplied to the arc. The apparatus is cooled by water.

A secondary gas, oxygen, is injected into the stream to form simulated air, which then rushes into the test chamber through a nozzle at speeds as high as 7,000 miles an hour.

After flowing past a model suspended in the test chamber, the hot air is passed on to a heat exchanger, then through vacuum ducts and ejectors.

Objects as large as six inches in diameter and 12 inches in length can be tested for as long as three minutes.

"Most existing hyperthermal facilities can sustain high-temperature, high-speed tests for only about 1/100 of a second," Stevens said.

Temperatures ranging from 2,000 to 15,000 degrees can be simulated, along with Mach numbers up to 13.

Speed of the air stream is determined by a family of "supersonic nozzles," which are connected to the plasma generator.

Shorter nozzles, smaller in diameter, will be used to obtain lower speeds, while larger nozzles will expand the air blast, creating an air stream of higher speed.

The test chamber has windows about 20 inches in diameter and one-inch thick.

Test results will be measured by such devices as a spectograph (to determine temperature and chemical composition of the stream); a system for observing shock waves and boundary layers; and special instruments to measure pressure in the air and heat transfer to the models.

"Much of the early research work in the facility will be of plastics and other ablation materials which don't conduct heat well and also melt or vaporize at certain temperatures," Stevens said.

Such materials, now used on many missile nose cones, literally "peel off" as the cone builds up to temperatures as high as 2,500 degrees for a short period—about 30 seconds—during re-entry into atmosphere.

ON TELEVISION—GD/Astro's C. F. McMenamy, right, advisory committee member, Community Educational Resources, discusses program's working with Tom Mullahey, KRON announcer; Dr. C. D. Hardesty, San Diego superintendent of education; and Mrs. Ruth Pierson, Imperial Beach elementary school teacher. Televised presentation will be shown on Channel 10 at 1:30 p.m., Jan. 21.

Committee Served as Liaison Between Schools and Industry

A new concept in education, in which General Dynamics employees played leading roles, will be explained in a special television broadcast "Communities Teach, Too," on San Diego Channel 10, Sunday (Jan. 21) at 1:30 p.m.

Subject of the panel discussion program, presented by the California Teachers Association as part of its "Why, Teacher?" series, is the Advisory Committee on Community Educational Resources.

On the panel is GD/Astro's C. F. McMenamy, advisory committee chairman, who with Dr. Cecil Hardesty, county superintendent of education, and Mrs. Ruth Pierson, Imperial Beach elementary teacher, explains the Community Resources program. The broadcast was filmed recently in San Francisco.

The 15-member committee was organized early in 1960, with McMenamy (now Astro Dept. 522-2, but then at GD/Convair), and a handful of other representatives from Convair, other local industries and research organizations. GD/Astro's Curtis Bates, Dept. 510, is presently a committee member.

"Our goal is to provide swift liaison between schools and authoritative information sources: industry, private laboratories, etc.," said McMenamy. "In this way students obtain accurate data on subjects currently in the news without delay inherent in preparing completely new textbooks."

Hard Ball Players Win Second Game

Convair's baseball nine stood 1-1 in second-half play after downing Lemon Grove, 13 to 5, on Robb Field at Ocean Beach Jan. 7.

The plant team had dropped its first game of the round to Rohr. It still had three games to go before the season ends. Schedule included a tilt at National City last Sunday; one with Astronautics next Sunday (Jan. 21) and the third the following week (Jan. 28) against Oceanside.

Both the Jan. 21 and 28 games will be played at Mission Bay Youth Field. Game time is 1:30 p.m. Spectators are welcome free of charge.

Convair will be in the play-off for championship title in March regardless of standing in current play, ending the first half undefeated.

ROCKHOUND SHACK REOPENS AT SD

Rockhound Shack, on Pacific Hwy. across from GD/Convair Plant 1, now is open again for regular Tuesday and Wednesday evening hours. It was closed over the holiday period, reopening Jan. 9.

Lunch Hour Putting To Resume Feb. 5

Lunch-hour golfers will be back in action when ARA's putting green east of GD/Astro cafeteria reopens Monday, Feb. 5.

The green, which has been closed for several months, has been seeded and repaired, and new balls and other equipment have been obtained.

The facility will be open from 11 a.m. to 1:10 p.m., Mondays, Wednesdays and Fridays.

Toastmasters Meet At General Atomic Site

Dynamics Toastmasters Club, open to all General Dynamics men, holds its regular dinner meeting tomorrow (Jan. 18) at the General Atomic plant, Torrey Pines.

Reservations for the 6 p.m. meeting may be made by calling Ken Samples, ext. 2223, GD/Convair, Plant 1. The meeting will be in the General Atomic dining room next to the cafeteria, and General Atomic men are especially invited to attend.

PARTY 'WONDERFUL' YOUNGSTER WRITES, THANKING CON-TRIB

"It was the best party I ever been to."

Written by a pre-teen-age youngster, this was part of a letter acknowledging the annual Astronautics Employees' Con-Trib-Club-Salvation Army Children's party held Dec. 17, at San Diego.

The letter read: "I would like to thank you for the party you held on Saturday. It was wonderful. Thank you for inviting us. It was the best party I ever been to. Thank the people who helped with this. And thank Mr. Jess too. He was so nice. Thank him for picking us up and taking us home. Thank you for the presents. They were very nice. I love them. The doll and the game called Chutes and Ladders. Thank you for the shoes and blouse and skirt. Thank the women who help, too. Thank you for everything."

An annual affair, the party was held for 150 needy children. More than 200 persons volunteered their time to help stage it.

* * *

GD/Astro contracts (Dept. 110) this year contributed food, clothing and toys to an Ensenada (Baja California) orphanage, as in Christmases past.

J. H. Edwards, contracts representative, reported that milk is at a premium, so canned and powdered milk were included in this year's contribution. From lack of housing, only girls sleep in the orphanage, he said, with boys fending for themselves at night.

* * *

For the sixth consecutive year members of GD/Astro's test equipment group in engineering contributed Christmas funds ($130 this year) to buy equipment at the Children's Hospital in San Diego. Additional funds went to Salvation Army, according to Chairman Mickey Cornwall.

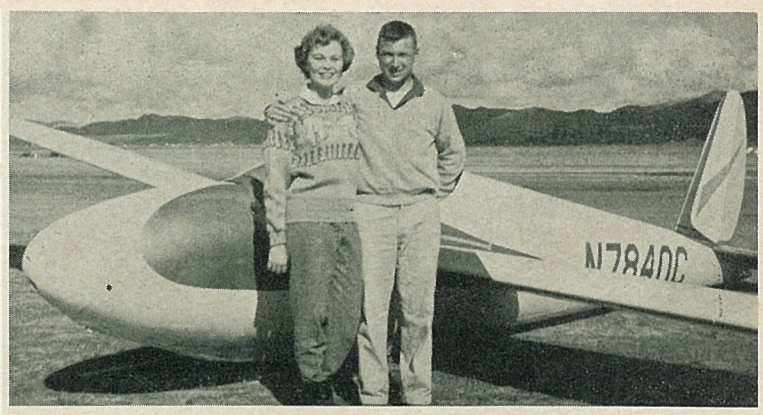
Free Family Swim Night Scheduled at Plunge For Feb. 3

Next free family swim night at the Mission Beach Plunge for GD/Convair and GD/Electronics people is set for first Saturday night of next month (Feb. 3), said Pete Beyrer of CRA.

In addition to the monthly swim, all General Dynamics people in the San Diego area are welcome to participate in the regular swimming activities offered at the plunge by the city park and recreation department.

The 60x175-ft. pool, largest indoor swimming pool in the West, is open Wednesdays, Thursdays, Fridays, from 2:30 to 10 p.m.; Saturdays and Sundays, noon until 6. Price is 60 cents for adults; 35 cents for under 16 years.

Instruction for all ages over 8 years, beginners through advanced, is offered as well as skin diving training. Bill Lucas, in charge of swimming activities for the city, may be contacted at AC-4-2439 for details.



BIRD WINNER—Mr. and Mrs. Sterling Starr and glider which helped win them turkey at annual sailplane contest.

Delegation of San Diego Sailplane Pilots Journey to Year-End Contest at Elsinore

Seven GD/Convair sailplane pilots were numbered among the 20 from San Diego area who took their gliders to Elsinore the last day of 1961 for a year-end contest.

Convair Recreation Association provided three turkeys for top scores. Winners, with least total miss distances in bomb drops from 500 feet and spot landings, were Sterling Starr of GD/Convair, Bill Petrie and George Tweed.

A warm 78-degree day with clear skies and no wind set the stage for the contest at Skylark Airport. Later in the day winds aloft on the Santa Ana mountains west of the field provided good sustaining lift. At one time 10 gliders were playing around the peaks and rocks of the mountains in flights of up to two hours in the air.

The day ended with a dinner for glider pilots and families at Live Oak Inn, south of Corona, on the way home to San Diego.

Besides Starr, others from GD/Convair taking part in the Associated Glider Clubs of Southern California contest were Gene Cain, Gene Whigham, both engineering flight test; Steve Kecskes of experimental and son, Andy; Duke Stallings, also of experimental; and Ted Sanford, engineering FAA coordinator.

Convair glider pilots will be assisting in arrangements for the annual Pacific Coast Mid-Winter Soaring Championships set for Feb. 24-25 at Torrey Pines.

OFFICE CHANGE—Lee Betts (left), outgoing president of Delta Toastmistresses, hands gavel to newly-elected prexy, Martha Woodberry of GD/Convair, in token of recent change of officers. In center is Virginia Reynolds of GD/Astro, new vice president.

Incoming Officers To Be Installed Jan. 19 To Serve Delta Toastmistresses in 1962

Martha Woodberry of General Dynamics/Convair will be installed president of Delta Toastmistresses Jan. 19 at ceremonies in the Lancer's Room, Kings Inn.

Guest speaker at the 7:30 p.m. dinner will be Mrs. Lu Cearns, Council 7 first vice chairman. Her topic will carry out the meeting theme, "The Chalice of Harmony."

Installing officer will be Mrs. Susan Hall, immediate past chairman of Council 7. Invocation will be given by Louise Klein, wife of Kurt Klein (GD/Convair, Dept. 142). Carolyn Boles will act as toastmistress for the evening's program.

Mrs. Woodberry (Dept. 3-2) succeeds Lee Betts (wife of L. T. Betts, Dept. 4-0) who headed the Convair-Astro women's speaking group during the last term.

Other incoming officers are: vice president, Virginia Reynolds, Astro Dept. 144; secretary, Cleo Fletcher; treasurer, Marilyn Heimberg; club representative, Catherine Whelan.

Regular meetings are held the second and fourth Tuesday of each month in the Convair executive dining room, Pacific Hwy. Next meeting will be Feb. 13.

HOLIDAY TIME—Happy gatherings of GD/Electronics groups marked end-of-year celebrations with dance for all-San Diego area people Dec. 15 at Wagon Wheel, Santee (center shots). Top shot shows William Lawrence, GD/Electronics general manager; H. L. Gates, manager of operations; H. J. Stuart, manager of product tests, and guests. Left and right shots show Dec. 22 dance of Information Technology group at Hotel del Coronado. Dance committee (left) are Sue Chappel, Roy Mattis, Carmen Randall, Don Hall, Dick Loew, Bill Redwood. At right, L. H. Orpin, Info Tech manager, congratulates Peggy Crosby on winning door prize.

ARA Calendar

(GD/Astronautics Recreation Association has some 45 activities in operation for employees. For information, call ARA Headquarters, ext. 1111.)

★ ★ ★

ARCHAEOLOGY — Meeting 7:30 p.m., Jan. 24, ARA Clubhouse. Movie on Pompeian excavations.

ASTRO LENS — Print, slide competition at meeting, 7:30 p.m., Jan. 21, Photo Arts Bldg., Balboa Park.

ASTRO MOTORS — Meeting, 7:30 p.m. tonight (Jan. 17), ARA Clubhouse.

ASTRO NOTES — Choral group meets and rehearses at 7:30 p.m., Mondays, ARA Clubhouse.

BALLROOM DANCING—New classes open for beginners (Jan. 29), intermediates (Jan. 31), 7:30-9:30 p.m., ARA Clubhouse. Cost is $9 per person for 12-week series.

BRIDGE — Meetings, play, every Thursday, 7:30 p.m., Barcelona Bridge Club, Fourth and Juniper.

CHARM SCHOOL — Self-improvement courses for women slated for ARA Clubhouse. First sessions: teen-agers, 5:15 p.m., Jan. 29; adults, 7 p.m., Jan. 31; advanced, 7 p.m., Jan. 23. Fee is $25 for 9-week series.

COINEERS—Meeting 7:30 p.m. tonight (Jan. 17), ARA Clubhouse.

EXPLORERS — Meeting 7:30 p.m. tomorrow (Jan. 18), ARA Clubhouse. Trip to abandoned mine, Jan. 27.

FREE TICKETS — Tickets for IRC swim night (7-9:30 p.m.) Jan. 30, Feb. 17, at Mission Beach Plunge, and Skateland, Front and "G" Sts., 6:30-9:30 p.m., Feb. 5, available at employee services outlets.

PUTTING GREEN — Reopens Feb. 5 for use on Mondays, Wednesdays and Fridays, 11 a.m. to 1:10 p.m.

RADIO CLUB — Meeting 7:30 p.m. tomorrow (Jan. 18), Radio Room, ARA Clubhouse.

STAMP CLUB — First meeting, 7:30 p.m., Jan. 25 in ARA Clubhouse. All employees, dependents welcome.

Explorers to Hear Talk on Baja Calif.

An illustrated talk on the Bahia de los Angeles region of Baja California will be presented at the meeting of ARA Explorers Club at 7:30 p.m., tomorrow (Jan. 18) in the ARA Clubhouse.

Helix High School instructor Al Pirie and students Robert Rothstein and Michael Kozinak will show movies and slides made on a recent three-day expedition to the area.

On Jan. 27 club members will visit an adandoned mine in southern San Diego County under the guidance of Roy M. Kerner, County Division of Natural Resources. Kerner was recently named an honorary member of the club.

During the year-end holidays the club sponsored a trip to San Quintin, Baja California, where members spent four days exploring the vicinity of an early British colonial effort.

TEAMS COMPETING IN GOLF LEAGUE

Two seven-man golf teams representing ARA are participating in the Industrial Recreation Council's match play tournament in progress at Torrey Pines and Balboa courses.

In a 0-14 handicap flight are Ken Crotz, Bob Stevens, Alex Bezverkov, John Olsen, Jack Ross, Paul Hooten and team captain Jack Weaver.

Hal Driscoll, Gene Petzen, Owen Hasbrooke, Frank DeGuide, Larry Broussard and Chuck Walton are captained by Bill Moon on Astro's 15-25 handicap team.

Both teams compete against units representing other IRC member companies.

Sports & Recreation

GRADUATE STUDENTS—Frances Darr (Dept. 521-6), left, and teen-ager Kristine Upton, right, demonstrate graces learned in ARA-sponsored charm course to instructor Sherry Miller. Latter will offer advanced course at moderate cost.

Classes in Self-Improvement To Resume in Astro Clubhouse

A new series of ARA-sponsored self-improvement classes for women will open later this month with an added advanced course for those adults and teen-agers who have completed basic instruction.

Taught by Sherry Miller, professional model and experienced instructor, classes will include coaching in poise, social graces, make-up, hair styling, voice and diction, and wardrobe coordination.

A teen-agers' class for girls 12 to 17 will meet on Mondays from 5:15 to 7:15 p.m. beginning Jan. 29, while adult sessions are slated from 7 to 9 p.m. on Wednesdays starting Jan. 31.

An advanced class for graduates of an earlier course will meet from 7 to 9 p.m., Tuesdays, beginning Jan. 23. All classes will be held in ARA Clubhouse.

Although usual cost of the nine-lesson series is $155, Astro employees and their dependents pay only $25 per person for the 18 hours of instruction.

Students will be asked to pay $10 upon registration, with balance of the fee payable in $5 installments at the first three class meetings.

Since each class is limited to 13 members, prospective students have been asked to register as early as possible by calling Dee, ext. 1111.

C. J. Lewis Will Head Garden Club in '62

New officers of ARA Garden Club were elected at the group's Jan. 3 meeting.

Heading the organization for the coming year is C. J. Lewis, president; with H. E. Manning, first vice president-programs; W. E. Mattison, second vice president-flower shows; Phyllis Files, secretary; and J. J. Hollen, librarian.

Following the election, Charles Lewis, a past president of the San Diego County Rose Society, presented a rose pruning demonstration, with plants used in his presentation later distributed as door prizes.

Next club meeting will be at 7:30 p.m., Feb. 7, in the Floral Bldg., Balboa Park.

Competition Slated By Astro Lens Jan. 21

A competition for black and white prints and color transparencies will be featured at the Jan. 21 meeting of Astro Lens, ARA camera club, slated for 7:30 p.m. in Photo Arts Bldg., Balboa Park.

At a meeting earlier this month, ARA Commissioner Ken Rinker presented a slide show and lecture on multiple exposures in 35mm color.

Young Fans Welcome At Stamp Kick-Off

Kick-off meeting of the new ARA Stamp Club will be held at 7:30 p.m., Jan. 25 in the south general meeting room, ARA Clubhouse. Club organization is such that a variety of interests will be served.

A reserved section of the meeting room will be set up specifically for the trading activities of youngsters.

"Non-collecting parents bringing children interested in the hobby will be particularly welcome," said L. E. LaNois, club organizer.

In addition, a stamp auction appealing to serious collectors will also be featured.

Contact LaNois at ext. 1914 or 2991 for additional information, or to enter quality philatelic materials in the auction.

Lectures, Field Trips Scheduled Tuesdays

General Dynamics employees in San Diego interested in hiking and wilderness preservation have been invited to a series of lectures and field trips sponsored by the Sierra Club and San Diego Park and Recreation Dept.

Held each Tuesday (7:30 to 9:30 p.m.) at Jefferson Elementary school (Utah St., south of University), the course is called "Basic Mountaineering." A. Van Norman of Dept. 597 at Astro is chairman.

Pompeii Ruin Film To Be Shown Club

A movie on excavation of the Pompeian ruins will highlight a meeting of ARA Archaeology Club at 7:30 p.m., Jan. 24 in ARA Clubhouse.

Over the year-end holidays the group held an outing at Terra del Sol, which included field trips to former Indian camp sites. Members recovered a number of metates, water bowls, and potsherds.

Spring Ballroom Dance Program Begins With Classes Jan. 29, 31

Astronautics Recreation Association launches its spring ballroom dancing program late this month with classes to open Jan. 29 and Jan. 31.

A beginner's class will be offered on Mondays with an intermediate class on Wednesdays. Both will meet weekly from 7:30 to 9:30 p.m. over a 12-week period at ARA Clubhouse east of the main plant. No advance registration is necessary.

The intermediate class will be limited to those who have had formal dance instruction within the past year. Couples are encouraged, although singles for each class will be accepted in equal numbers.

Professional instructors will teach each class. Every effort will be made to offer a well-rounded program with some instruction in fox trot, swing, waltz and all the latest Latin steps.

Cost per student will be $9 for the 24 hours of instruction. Fees are payable and registrations possible during the first three class sessions. After that time no new students will be accepted.

Information on the program is available through Bryan Weickersheimmer, ARA commissioner, at ext. 3322.

Golf Club Holds Last Tourney

Twenty-six turkeys were awarded winners of Convair Golf Club's concluding "Best-of-Nine" tournament held last month at Torrey Pines. More than 100 golfers from GD/Astro and GD/Convair took part.

Leading winner was E. Muklevicz with 62. He was trailed by Larry Broussard (63), M. Barksdale (64), Claude Lepper (65), Sam Ciolak (66), and Fred Wells and Frank Rodgers (67).

Other turkey winners were Carl Carver (68); Kay Stiles and Dick Ransdell (69); Jim Jones, Walt Rye, Lou Canter and Harry Coyle (70); John Sentovic, Lou deBelloy, Ken Eastin and Tob Hunley (71).

C. B. Bagaloff and Dick Torrance shot 72s, while Jack Weaver, Harry Richards, Ed Bourgeois, Hank Billings, Chuck Walton and Clark Saunders turned in 73s to round out the winners' list.

Astro 'Polar Bears' Dip in Cold Water

Ten courageous Astro Divers members braved 56-degree water temperatures clad only in swim trunks to make the club's annual "Polar Bear" dive at La Jolla Cove, New Year's Day.

Rewarded for bravery in a prize drawing following the event were Cliff Kickbush, ARA commissioner, Jorge Zorrilla, Sam Spadero and Frank Samuelson.

The club held an abalone dive Jan. 7 at Whale Point Beach, La Jolla, although on this occasion participants were permitted to wear rubber diving suits.

The group's next business meeting will be at 7:30 p.m., Feb. 7 in ARA Clubhouse.

Schneider Leader In '61's Last Shoot

In final club matches of 1961, Roland Schneider's 284 led master class contenders in ARA Pistol Club's .22 Police Course competition, trailed by Ralph Sanderlin with 282.

Leading other classes in the San Diego Police Pistol Range event were Mort Williams (278) and Don Smock (271) in expert class; Howard Bluhm (255-5x) and Bill Jungk (255-3x), sharpshooter class; and John Bennett (250) and Sid Susman (182) in marksman class.

A .45 Short National match was won by Russ Oliver with 274, followed by Schneider with 259 and Glen Myers with 253.

Dynamics Fencers To Appear on TV

Members of the joint ARA-CRA Fencing Club will be featured on San Diego television channel 10 when the Lute Mason "Sports Unlimited" show examines the sport at 7 p.m., Jan. 18.

Seen in "combat" will be Mike Hurley, ARA commissioner, Ray McNamara, club president, Barbara Proppe, Audrey Knauer, and father and son, Dick and Don Jones.

The show includes actual fencing bouts, and demonstrations of the sport's finer points. Scenes were filmed at a recent club meeting.

ARA Rockhounds Continue Trips

A round of field trips opened over the New Year's weekend will continue for ARA Rockhounds under guidance of Darrell Nopens, field trip chairman.

Most recent trip led a group of 46 persons to the Little Chuckawalla mountains and Wiley Wells where agate, quartz, geodes and Indian artifacts were collected. Yuma Test Center and petrified wood specimens will be the club's goal Feb. 10-11.

Nopens has also offered to lead small groups of members to Tourmaline Queen mine on a special-arrangement basis.

At the club workshop in ARA Clubhouse, George Boone and Walter Passino are arranging new classes in lapidary work, and a club lending library has been established.

Convair and Astro Netters Split Even

Netmen from Convair and Astro split even-steven in first of a series of inter-division tennis tourneys matching teams from each company.

Four teams in each bracket were entered from each division in the Dec. 23 men's doubles tournament on Balboa Park's Morley Field courts.

Convair team of Stan Griffin and Dennis Sealey swept the A class defeating Chet Dutton and Barry Gibson in the finals 6-3, 6-3.

Topping the B class were Astro players, Rob Sanchez and Don McClarren who defeated Carl Schuler and Ed Bennett by 6-4, 6-4.

Rivalry between the two divisions will continue with an Astro vs. Convair novice tournament next month.

Noted Numismatist Is Guest Speaker

Prominent San Diego numismatist James J. Anderson will be guest speaker at the Jan. 17 meeting of ARA Coineers, scheduled for 7:30 p.m. in ARA Clubhouse.

The veteran collector will discuss commemorative coins.

ARA Commissioner Joe Garside has announced "The Young Collector Displays" as theme for the meeting's coin display. Entries will be limited to persons 18 years old or younger.

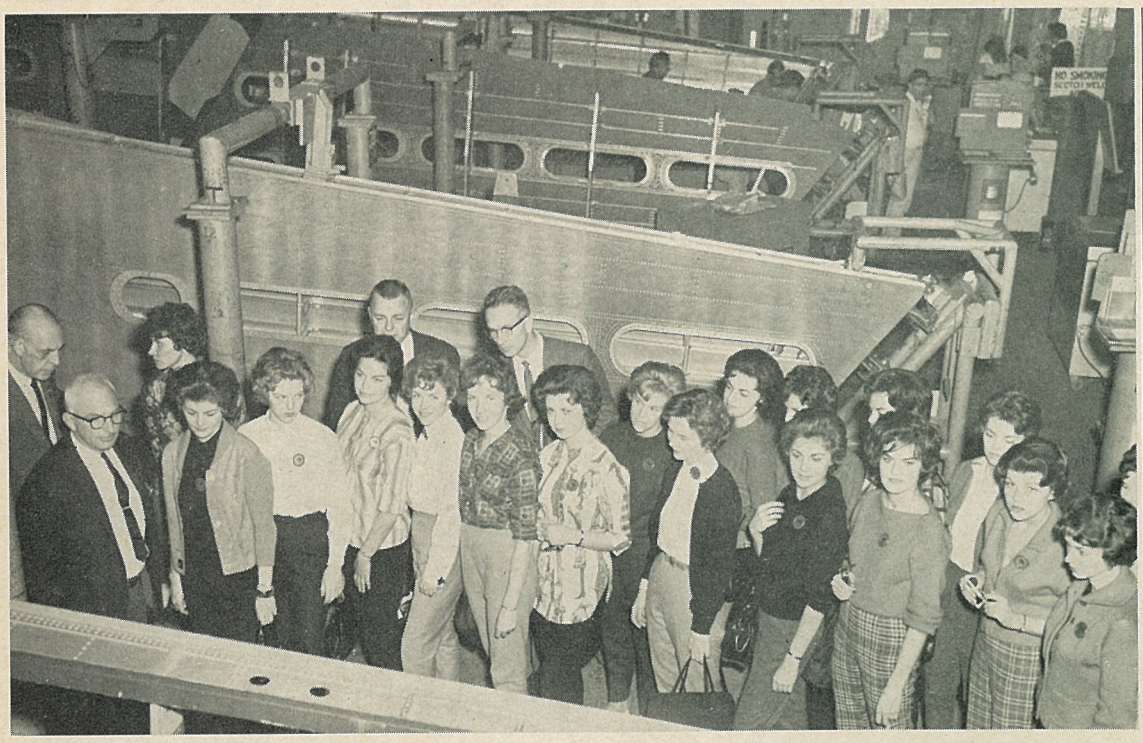
A coin auction will be held and an uncirculated Canadian copper will be given to each person attending.

Desert Trip Enjoyed By Astro Travelers

A four-day outing at Joshua Tree National Monument was featured by Astro Travelers over New Year's.

With Hidden Valley Campground as base of operations, trailer fans climaxed a round of games, hiking and side trips with a potluck dinner.

Main course was roast turkey.



WOMAN'S ANGLE—Twenty attractive American Airlines stewardesses from Chicago and New York are snapped in wing primary at GD/Convair plant during recent briefing on Convair 990 jetliners, now going to airline. W. W. Lynt of GD/Convair (second from left) conducted tour. American officials are, at far left, T. W. Brooks, director of stewardess services; R. B. Tingdale, manager of stewardess training and processes; K. S. Van Dyke, manager of terminal services.

Pod Program Nearing End This Month

The B-58 two-component pod drop program is slated to near completion in January, with only five drops remaining on the schedule.

Hustler No. 4 was to make two more low-altitude drops of an upper-component over Tonapah Test Range, and a tank drop over either the Salina, Kan., or White Sands, N. M., range.

Upon completion of these drops, No. 4 will go into modification at GD/Fort Worth for updating before being returned to Air Force Flight Test Center at Edwards AFB.

No. 38 had only two more high altitude drops to make before entering the B-58 multiple-weapon testing program out of Albuquerque, N. M., according to Team Captain Jim Graham.

VIEW 990—Frank Pace Jr. (center), GD chairman of board, is greeted at GD/Convair by R. A. Neale and J. H. Famme.

COST-CUTTERS—A. W. Wright looks on as R. E. Kangas and K. W. Noonan insert blank for hydro-chemical forming of bottle cap. D. G. DeVlieg displays bottle and finished stainless steel cap.

$60 Cost For Single Steel Cap Cut To $5 by Hydro-chemical Forming

Small parts and big savings—over $10,000 on a single production order—are the result of a recent application of hydro-chemical forming methods at General Dynamics/Astronautics.

Since beginning operation last year, GD/Astro's hydro-chemical forming facility east of the main plant at San Diego has been used primarily to form large units such as housings and experimental hemispheres.

A need for 190 special stainless steel caps for liquid nitrogen test sample bottles recently provided an opportunity to test its use in manufacture of small parts.

The bottles are double-walled, stainless steel containers of two-quart capacity, used to draw off test samples of liquid nitrogen used in Atlas missile systems. Commercially available caps of chrome-plated brass were unsuitable for use with the nitrogen's extreme cold (about 320° below zero).

Toolmaker R. E. Kangas and K. W. Noonan, tooling assistant foreman (Dept. 452), were asked to supply the caps, but found that the traditional method—machining them, with threads, from solid stainless steel bars—required eight hours per cap.

Wincing at a cost of $60 each by this method (plus material), they asked D. G. DeVlieg of manufacturing research (Dept. 290-2) to develop a more economical production means.

DeVlieg carried the problem to W. C. Wilson (Dept. 290-2) and A. W. Wright, sheet metal assistant foreman (Dept. 732), who head hydro-chemical forming facility operations.

They developed a new approach to the project, in which a steel disk is welded to close one end of a .020-in. stainless steel tube. The "cup" thus formed is fitted into a steel die and the "set up" lowered into the hydro-chemical forming pool with about four grams of explosive.

Electrical detonation of the charge creates an underwater shock wave which forces the blank into the die. Result is a threaded cap, complete except for trimming!

Total expense, including die and process development: less than $5 per unit!

Materials and Designs Tried Out in Tests For Portable Landing Field

Landing mat panels, of a new-type construction developed at General Dynamics/Convair, were withstanding impact forces comparable to high-speed jet landings recently in a series of tests at San Diego.

A variety of materials and combinations have been under consideration by GD/Convair engineering during studies conducted for the Navy under a contract awarded last July. Work called for design, fabrication, and testing of SATS (small airfield tactical support) matting for portable landing fields to be used by Marine fighters making aircraft carrier-type approaches.

Specimens now leading the list for possible use as matting material are of sandwich construction. Cores are solid spruce wood faced with aluminum.

G. L. Pankey, project leader, said that other light-weight materials considered for portable panels included steel, fiber glass, magnesium, to name a few, as well as combinations of different metals and woods.

"Prime candidate for matting material—the wood and aluminum sandwich—seems to meet all requirements," he said. "The wood core can absorb high impact energy and can be built at a lower cost than the all-metal types."

However, an all-aluminum brazed honeycomb panel will undergo rigorous tests as the testing program continues.

A series of at least 50 tests has been run during the last couple of months by the materials and processes laboratory at the San Diego plant.

Impact tests, proving that the material could withstand a 135,-000-lb. landing force, wound up the current series.

Steel weights, from 44 to 110 lbs., were dropped from a height of 35 feet onto specimens (covered with rubber pads acting the part of wheel tires) to simulate extreme force of actual jet plane landings. Drops were made from the top of the evaporating tower behind Bldg. 5, Plant 1.

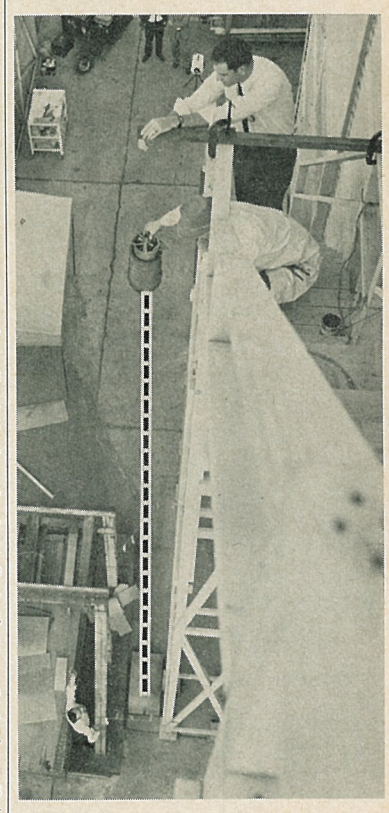
Other tests included fatigue, beam bending, shear, rolling wheel load, edge connectors, temperature extremes.

Preliminary hook impact tests also have been run successfully by the Navy at the Naval Air Engineering Laboratory, Philadelphia, Pa., on panel assemblies furnished by GD/Convair.

All specimens, and two full-size panels 52 inches square, were built in GD/Convair's experimental model shop. In addition, a tool has been designed for handling and adjusting the panels as they are laid to form a landing strip. It would take 20,000 panels to make a complete SATS field with landing strip 72 by 2,000 feet.

Panels designed at GD/Convair have connectors on all four sides with bars fitting into the slots to firmly join individual panels. Advantage of such a system, explained Pankey, is that individual panels can be removed and replaced easily without disturbing the rest of the landing strip.

A full report on initial studies on the SATS MATS project, as it is known, will be submitted to the Navy for consideration before the end of this month.



HIGH DROP—Harry Ruscigno, GD/Convair engineer, (on steps of high evaporating tower) adjusts wire holding steel weight, steadied by Bill Parker of materials and processes lab, before drop on SATS MATS test specimen. Forces duplicated those produced in high-speed jet landings.

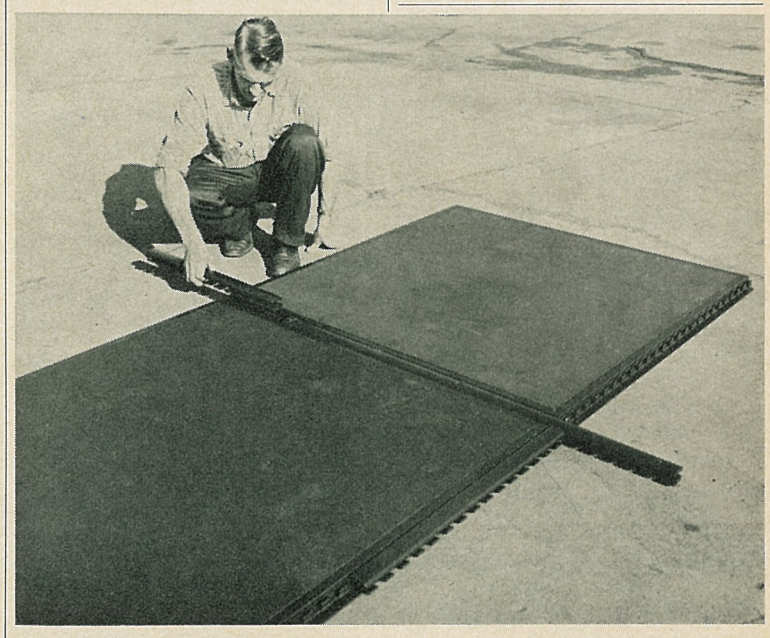
Consolidated 'Vets' Reunite 26th Time

Consolidated Aircraft oldtimers renewed pledges of friendship for another year as they gathered for their annual New Year's Eve party.

For the 26th time the group, now numbering some seven couples, welcomed in the young year together. They were the balance of 24 Consolidated employees who began the tradition in 1935 when the company moved from Buffalo, N. Y., to San Diego.

Missed this year were the Ben Kiegles. His death occured a few weeks before. And the Arnie Springers missed their first get-together when they were stalled with car trouble, but had the fun of joining in "Auld Lang Syne" over the phone as the clock struck 12.

Hosts for this year's reunion were Mr. and Mrs. William Milton of Pacific Beach.



SMOOTH JOINING—V. P. Livermore of GD/Convair experimental inserts connecting bars to join panels under development at GD/Convair for portable landing strips. In actual placement, panels would be staggered.

GENERAL DYNAMICS

NEWS

ASTRONAUTICS EDITION

Vol. 15, No. 3 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, January 31, 1962

Data System Links Bases, Home Plant

Another service in support of the Atlas ICBM base activation program—a plant-to-base data transmission system—will be inaugurated by General Dynamics/Astronautics next month.

A pilot installation linking GD/Astro with its Plattsburgh AFB operation will be placed in service by Feb. 22, and expansion of the service to other bases, as required, is contemplated.

Service permits transmission of data on a card-to-card basis via existing leased telephone lines, which will connect two IBM-066 transceivers and a 407 printer located at each terminus.

Information in the form of punched cards is fed into a transceiver at the "sending" station to be reproduced simultaneously at the other terminal. Here the "new" cards are run through the printer which converts information to usable form.

Base activation scheduling and analysis (Dept. 603) will be among first users of the new system, transmitting Program Evaluation Review Technique (PERT) scheduling data.

Payroll and timekeeping also look to the system as a means of eliminating a potential problem. Pay checks for Plattsburgh AFB employees are presently issued in San Diego, and shipped by the fastest means. However, because of its location, Plattsburgh often encounters delays in getting the checks for distribution.

The card-to-card system permits the Plattsburgh payroll prepared at the main plant to be flashed to the base, where the IBM-407 printer prepares the actual checks.

Other potential users of the system include engineering, manufacturing control, product support, general accounting, quality control and planning. In addition, the base is provided with almost instantaneous access to the extensive data processing facilities at GD/Astronautics' main plant.

Under present concepts, data will be sent on two shifts with heavy emphasis on night shifts when leased telephone lines are most available.

Primary responsibility for planning and instigating the service was vested in a committee headed by M. D. Kimble, base activation, with members including Bruce Piper, business data processing; E. B. Simmons, engineering facilities planning; O. S. Hall, organization and systems; John Marshall, manufacturing control; and W. W. Davies, planning.

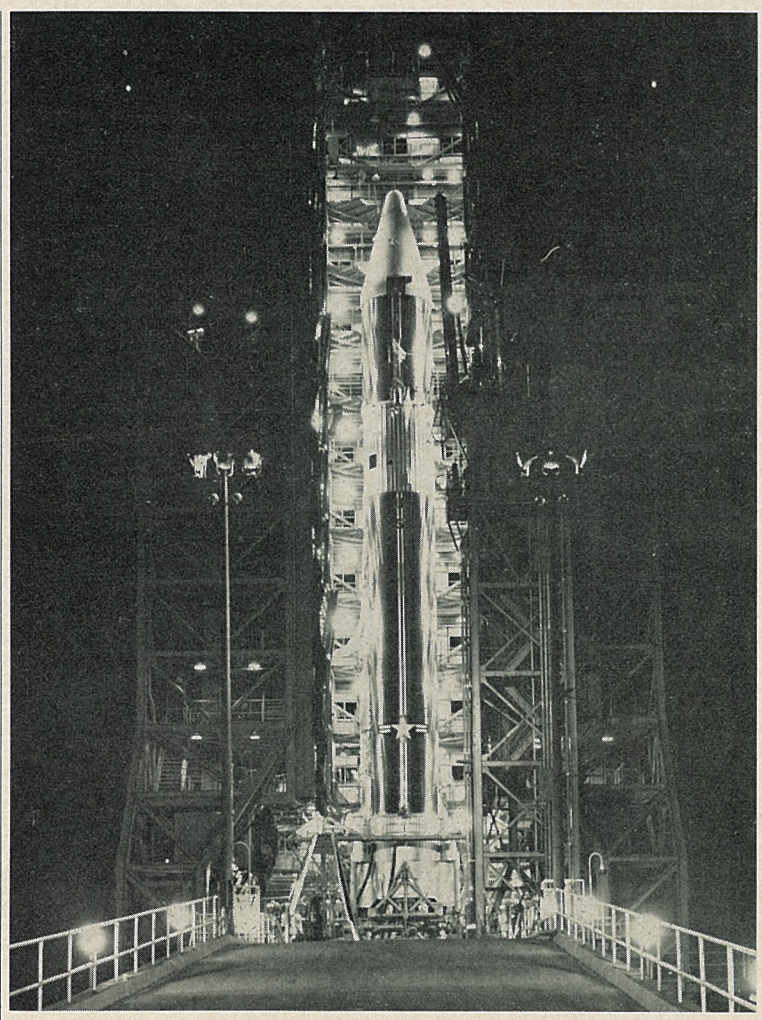
JUDGING PROCEEDS IN ARA CONTEST

Two contests, sponsored by GD/Astronautics Recreation Association, are in the final stages of judging with winners to be announced Feb. 14.

More than 60 names were suggested for a "booster type" organization and 65 designs submitted for possible use by ARA, causing judges to meet several times for each contest.

In the name contest six finalists have been selected. Members of the "booster" group and ARA Employees' Council will decide winners. Several outstanding designs submitted are being analyzed for possible adoption.

Merchandise certificates will be awarded winners in each contest.



NIGHT LIGHTS—Atlas/Centaur launch vehicle, shown here on launch pad at Cape Canaveral, will soon be used to make probes into space under direction of NASA. Astronautics is reorganizing its Centaur line organization under G. L. Hansen, vice president and program director-Centaur.

Ehricke to Direct Task Group Aimed At New Projects

General Dynamics/Astronautics is taking two immediate steps to improve its position in developing present and future space vehicles by expanding its executive staff for management of the Centaur program and establishing a new advanced studies organization.

J. R. Dempsey, GD/Astronautics president, announced the steps and indicated initial organizational changes and appointments would become effective tomorrow (Feb. 1).

Krafft Ehricke

Step one calls for a new Centaur project line organization under Grant L. Hansen who becomes vice president and program director-Centaur. Step two centralizes advanced space system development under Krafft A. Ehricke, named director of advanced studies.

Dempsey pointed out that fundamental Centaur design work is essentially past and the new project organization will enable Astronautics to be more responsive to requirements set forth for Centaur by the National Aeronautics and Space Administration.

Returning Ehricke to the theoretical and experimental development field will enable Astronautics to continue its leadership in the development of new space projects, Dempsey added.

"Krafft Ehricke is eminently qualified in advanced studies. His skill and planning got us into Centaur in the first place," Dempsey said. "He is in complete accord with these changes and will remain available for advice and consultation to the Centaur organization for as long as necessary."

Approximately 700 Astronautics employees in the San Diego area are presently tabbed for the

(Continued on Page 2)

Six Executives Appointed

Six initial executive appointments within the new Centaur project organization at General Dynamics/Astronautics have been announced by J. R. Dempsey, president.

Reporting to Grant L. Hansen, vice president and program director-Centaur, will be K. W. Jeremiah, deputy program director, program control, Centaur (Dept. 951); G. D. Davis, chief engineer, Centaur (Dept. 952); E. J. Bryant, manager of material, Centaur (Dept. 953); L. G. Granstedt, manager of operations, Centaur (Dept. 954); and W. R. Monroe, manager of reliability control, Centaur (Dept. 955).

Grant Hansen

Hansen has been with Astro since 1960, most recently as chief engineer-design. He has participated in all engineering man-

(Continued on Page 2)

Roger Lewis Of Pan Am to Join Dynamics

Frank Pace Jr., Chairman of General Dynamics Corporation, last week announced that Roger Lewis has agreed to become president and chief executive officer of General Dynamics in April. Earl D. Johnson, currently president of General Dynamics, would become Chairman of the Board at that time.

Lewis was elected a director and a member of the executive committee of the Board of Directors effective upon termination of his employment with Pan American World Airways System.

Lewis has been an executive vice president of Pan American and a director and a member of the executive committee of that company.

"Several months ago," Pace said, "I advised the Board of Directors that if the jet transport problem of General Dynamics could be brought under control by April of 1962—as it has—I would prefer not to stand for reelection at the next annual meeting.

"In Roger Lewis we have found a man uniquely qualified to head General Dynamics both through his long and successful experience as a business man and his broad knowledge of the aerospace industry. We are very fortunate in having obtained his services.

"My remaining three months as chief executive officer," Pace added, "will provide an opportunity for our mutual assessment of problems and an orderly transfer of authority."

Lewis has been an officer of Pan American World Airways System for more than six years. Before joining Pan American in 1955 he had served from March, 1953, as Assistant Secretary of the Air Force.

Lewis' entire business career has been in the aerospace industry. After graduation from Stanford University in 1934, he started in the metal shop of Lockheed Aircraft, working up through production control and purchasing. During World War II, he was director of material. In 1945 he became assistant general sales manager of Lockheed, and in 1947, a vice president of Canadair Limited, now a subsidiary of General Dynamics. In 1950,

(Continued on Page 2)

KEY FIGURES—Among principals at joint Astro-AFPR Management Club meeting were these. Seated, from left, J. R. Dempsey, GD/Astro president; Maj. Gen. T. P. Gerrity, commander AFBSD; P. M. Propheti, director, base activation. Standing, same order, J. Z. Mraz, president AFPR Club; Col. H. E. Moose, AFPR, and W. E. Magnuson, Astro Club president.

Gerrity Says He's Proud Of Base Activating Job

"We have tackled tough problems with tougher people to make the gains we have in Atlas base activation. I am extremely proud, as you can justly be, of the efforts you at Astronautics have contributed."

This opinion was expressed recently by Maj. Gen. Thomas P. Gerrity, commander of the Air Force Ballistic Systems Division. He spoke before a joint meeting of GD/Astronautics and Air Force Plant Representative Management Clubs at El Cortez Hotel.

Labeling his words as an exchange of ideas, not a speech, General Gerrity traced some of the problems of the Atlas site activation work which he deemed the "real payoff" of the entire Atlas weapons system program. He spoke of pin pointing responsibilities, determining what the job was, overcoming the "wrong kind of help," solving manpower problems and setting up effective communication on and between every level. He told of reorganizations within the Air Force which led to focusing program responsibilities within a single command.

The general called each activated site a vital deterrent factor for present and future generations. He called for continued support until the task has been accomplished.

In speaking of future efforts, he urged increased man-to-man contact.

"I have never thought of Astronautics as a corporation, but as people—individuals," General Gerrity said. "Those who work with me share this philosophy."

He urged man-to-man contacts among team members regardless of levels.

Astronautics' base activation department sponsored the program.

Log Book Entries

Promotions

MAIN PLANT

Promotions to or within supervision effective Jan. 15.

Dept. 105, Advanced Product Planning: To manager of advanced products, F. A. Zylius. To chief of sales planning, H. C. Koehne.

Dept. 152-0, Program Planning and Control: To master scheduler asst. supervisor, E. C. Walley.

Dept. 230-0, Manufacturing Control Scheduling: To manufacturing control supervisor, W. M. Becker.

Dept. 335-2, Service Parts: To support logistics asst. supervisor, H. W. Harrington.

Dept. 344-2, Support Operations: To foreman, W. J. Tartar.

Dept. 351-3, Field Modification: To manufacturing control asst. supervisor, P. R. Prichard.

Dept. 539-2, Design Liaison: To asst. design group engineer, J. R. Cook.

Dept. 604-0, Base Activation: To asst. supervisor, G. Stamper, T. A. Szejn.

AFMTC

Dept. 571, GD/Astronautics Operations: To site engineering supervisor, J. J. McCarren, J. E. Smith. To asst. test conductor, J. H. Starkey.

ALTUS AFB

Dept. 617, GD/Astronautics Operations: To chief of cost control-base, J. T. Perkins. To inspection asst. supervisor, D. V. Dinkins, G. L. Martin, J. W. Nester, D. M. Rowe, R. G. Thompson.

DYESS AFB

Dept. 618, GD/Astronautics Operations: To launch complex supervisor, B. A. Graham. To inspection asst. supervisor, D. M. Givens.

LINCOLN AFB

Dept. 616, GD/Astronautics Operations: To receiving and stores asst. foreman, R. R. Holcombe. To activation engineering asst. supervisor, W. E. Kauder. To asst. foreman, G. E. Lovec, O. J. Smith.

PLATTSBURGH AFB

Dept. 620, GD/Astronautics Operations: To production control asst. foreman, L. C. Henry. To asst. foreman, R. J. Cormier, R. L. Dyer, H. T. McCulley.

SCHILLING AFB

Dept. 615, GD/Astronautics Operations: To production control foreman, M. O. Secrest, C. A. Stewart.

WALKER AFB

Dept. 619, GD/Astronautics Operations: To production control, asst. foreman, H. H. Cruse. To transportation asst. foreman, R. N. Stephenson.

Service Emblems

MAIN PLANT

Service emblems due during the period Jan. 16 through Jan. 31.

Twenty-year: Dept. 143-0, J. F. Baebler; Dept. 756-0, Martin Fitzgerald; Dept. 771-0, F. B. Presley; Dept. 773-0, J. D. Willingham.

Fifteen-year: Dept. 220, Albert Amison Jr., E. E. Darling; Dept. 700-0, Helen P. Moore; Dept. 771-0, H. D. Witt; Dept. 783-0, H. T. Walsh.

Ten-year: Dept. 101-7, Norma J. Withem; Dept. 123-0, Helen C. Price; Dept. 143-1, R. L. Graham; Dept. 191-0, L. F. Moeller; Dept. 220-2, Agnes C. Silva; Dept. 290-2, A. T. Medina; Dept. 305-0, Peter Markovich; Dept. 330-0, W. V. Gillette; Dept. 331-1, A. W. MacRae; Dept. 343-2, G. E. Harris.

Dept. 404-0, G. W. Fisher; Dept. 454-0, R. L. Prather; Dept. 480-0, C. W. Moon; Dept. 510-4, Rena E. Rath; Dept. 522-4, J. R. Duffy; Dept. 541-3, J. S. Comber; Dept. 553-3, R. W. Weber; Dept. 570-0, A. C. Rath; Dept. 756-0, V. J. McNally, A. H. Tuckerman; Dept. 759-0, George Lund; Dept. 771-0, T. W. White, C. E. Weber.

AFMTC

Ten-year: Dept. 571-3, E. L. Hayes.

ALTUS

Ten-year: Dept. 617-1, W. G. Dill.

EDWARDS RS

Twenty-year: Dept. 575-3, M. S. Dace.

LINCOLN AFB

Fifteen-year: Dept. 616-4, W. E. Ely.

SCHILLING AFB

Fifteen-year: Dept. 615-0, J. T. Allen.
Ten-year: Dept. 615-7, B. P. Ferguson.

WALKER AFB

Ten-year: Dept. 619, G. E. Smith, R. S. Wilson.

Deaths

MAIN PLANT

GREENWOOD—Charles H., Dept. 451-0. Died Jan. 7. Survived by wife, Marie.

JACKSON—Joseph D., Dept. 343-1. Died Dec. 29. Survived by wife, Nancy.

SLAUGHTER—Briner E., Dept. 523-2. Died Jan. 21. Survived by wife, Irene, Dept. 220-3.

WALKER—Kenneth V., Dept. 351-3. Died Jan. 9. Survived by wife, Elnora, son and daughter.

WARD—Richard B., Dept. 604. Died Jan. 19. Survived by wife, Mary, and two children.

ALTUS AFB

LYONS—Elmer D. Jr., Dept. 617-7. Died Dec. 30. Survived by son, Gary.

DYESS AFB

HACKNEY—Verlin M., Dept. 618-7. Died Jan. 7. Survived by daughters Janet, and Marian Douglass.

LINCOLN AFB

WORLEY—James M., Dept. 616-9. Died Jan. 8. Survived by wife, Donna Jean.

SYCAMORE

LEACH—Howard C., Dept. 573-6. Died Dec. 28. Survived by wife, Phoebe.

Births

MAIN PLANT

BENSON—Twin sons: Bruce, 6 lbs., 8 oz., and Craig, 8 lbs., 11 oz., born Jan. 9 to Mr. and Mrs. Paul Benson, Dept. 141-4.

JOHNSTON—Daughter, 9 lbs., 8½ oz., born Jan. 18 to Mr. and Mrs. Robert W. A. Johnston, Dept. 143-5, stationed at Levittown, N. J.

LINCOLN AFB

HAM—Son, Nathan Lane, 6 lbs., 11 oz., born Dec. 18 to Mr. and Mrs. N. L. Ham, Dept. 351-3.

Professor Conducting Jr. Science Series

Sessions of the Junior Astronnomy and Science Club's winter workshop for junior high school students now meet at 7:30 p.m. on the first and third Fridays of each month in ARA Clubhouse.

The series is conducted by Dr. Gerhard Wolters of San Diego State College and emphasizes deeper understanding of scientific method through building and using equipment.

There is no charge for the series, though youngsters (12 years and older) are asked to bring paper, pencil and transparent ruler.

Astro Men Active In New Legion Post

Two GD/Astro employees figure prominently in a new American Legion post in the Clairemont area.

J. W. Paulson, Dept. 250-5, is adjutant, and Merle Nichols, Dept. 141-1, is first vice commander of the newly chartered Albert J. Hickman Post 460.

Meetings are held the first and third Thursdays of each month at 7:45 p.m., at the Community Center, 3605 Clairemont Dr. New members are welcome.

Major Assembly Wins Safety, Housekeeping

Highest score in an annual safety and housekeeping competition since inception of the program at General Dynamics/Astronautics has been logged by major assembly (Dept. 758), winner of the 1961 contest.

The department, which will be honored at the annual safety dinner later this year, scored 18 of a possible 24 points in monthly contests.

Machine shop (Dept. 731) is winner of the annual good housekeeping award.

Several revised operating procedures for the 1962 contests have been announced by J. W. Garrison, GD/Astro chief safety engineer (Dept. 130-8).

These include new criteria for designating "serious medical" cases; modified statistical methods to present a more accurate injury to employee ratio; and elimination of the housekeeping portion of monthly safety contests.

Housekeeping this year will be combined with GD/Astro's recently instituted plant appearance contest, with monthly awards going to top departments in four work area classes.

In the 1962 safety competition scoring will be based on frequency of serious medical cases to the number of exposed (non-office) department employees.

The "serious medical" case has been newly redefined to include all disabling injuries, eye injuries, fractures, lacerations requiring sutures, injuries resulting in work restrictions, those requiring treatment which result from violation of safety regulation, and any so classified at the discretion of the attending physician.

Roger Lewis to Join Dynamics in April

(Continued from Page 1)

he joined Curtiss-Wright Corporation, where he was a vice president.

Lewis was born in Los Angeles in 1912. He is a trustee of Aerospace Corporation, a member of the Institute of Aerospace Sciences, the Council on Foreign Relations and of the Links Club and the University Club of New York City.

In a supplementary statement, Henry Crown, chairman of the executive committee of General Dynamics, said:

"Frank Pace has always had, and has now, the complete respect and confidence of the executive committee. Under his leadership, the jet transport problem has been brought under control.

"Engineering solutions to the problems of the 990 commercial jet transport have been found, and delivery of the aircraft to its airline users has begun.

"Financial arrangements with banks and with the Prudential Life Insurance Company have been recast; these arrangements should provide needed financial support for the foreseeable future.

"The management of the company's operating divisions has been made stronger than at any time in the company's history.

"Since Mr. Pace has decided not to stand for re-election, we are pleased that the corporation has been able to obtain, as its new president, a highly successful executive with special experience in the aerospace field. We are also fortunate in being able to retain the services, as Chairman of the Board, of Earl Johnson.

"Mr. Pace will, of course, continue to direct the affairs of General Dynamics for the next three months. While the executive committee has kept in intimate touch with the affairs of the corporation, its role is not operational."

Medical Items For '61 Listed

General Dynamics / Astronautics employees itemizing their medical deductions on 1961 income tax returns may deduct specific amounts involving dependent insurance and disability insurance.

Those carrying dependent insurance may deduct $2.90 per week for the entire year. However, for employees in a bargaining unit which did not accept major medical expense benefits for dependents the amount is $2.59 per week.

In addition, that portion of disability insurance premiums actually applied toward hospitalization insurance is deductible. This is 15.3 per cent. For example, those earning $3,600 or more at Astro paid $36 for disability insurance and may deduct 15.3 per cent or $5.51. An employee earning $2,000 could deduct only $3.06.

Save Material — Don't Throw Your Job Away!

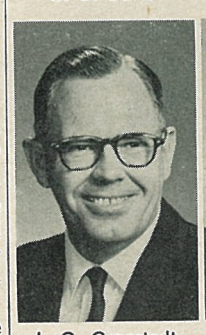
Six Executive Appointments Made in Centaur Organization

(Continued from Page 1)

agement reviews of major space vehicle predesign studies and proposals. From 1948 until 1960, he was with Douglas Aircraft, rising to assistant chief design engineer. He has an extensive background in missile and space vehicle development and in 1948 worked as a test conductor for Douglas at White Sands Proving Ground beside Dr. Wernher von Braun and associates. Hansen holds a BS degree in electrical engineering from the Illinois Institute of Technology.

G. D. Davis

K. W. Jeremiah



L. G. Granstedt

E. J. Bryant

W. R. Monroe

Jeremiah has served as assistant Centaur program director. A veteran of over 20 years with General Dynamics, Jeremiah has worked on the Atlas program since its inception. He was among the first sent to Cape Canaveral and was chief test conductor on the initial Atlas launched there. He was Astronautics operations manager at both Edwards Rocket Site, a test installation, and Warren AFB, an operational base, before joining Centaur. He holds a BS degree in mechanical engineering from the University of Oklahoma.

Davis is another veteran (more than 20 years) of aircraft and missile development who has served recently as chief project engineer for Centaur. He became active in Atlas missile work in 1954 and was a member of the Centaur development team. He was project engineer on "Project Score," the famed "talking Atlas" satellite. Davis holds a BS degree in structural engineering from Washington State College.

Bryant joined Astronautics in 1960 and has handled purchasing and subcontract administration work on Centaur since that time. Following his graduation from the U. S. Naval Academy, Bryant served 22 years with the Navy in procurement and logistics fields, retiring as a captain. He holds a MA degree in business administration from Harvard Graduate School.

Granstedt is a veteran General Dynamics employee, having spent some 25 years with the company, primarily in the field of tooling and development. He has been chief tool engineer at Astro, a post he filled when the division was organized. His work includes many projects involving both Atlas and Centaur during the development and production stages.

Monroe was manager of reliability and electronics at GD/Convair before joining Astro as a special assistant to the director of reliability control. During five years with Convair, he worked extensively in fields involving missile and spacecraft. He holds a BA degree in mathematics and physics from Baylor University and a MA degree in physics from Texas A&M.

Courington Appointed Mgr. of Change Admin.

H. C. Courington, formerly chief of configuration control, has been named manager of change administration department at General Dynamics/Astronautics.

H. C. Courington

Courington replaces H. L. Ellsworth who has resigned.

A native of Jacksonville, Ala., who attended secondary schools in Parrish, Ala. and various trade and technical schools elsewhere, Courington has been with General Dynamics for over 11 years.

He joined GD/Convair in 1950 and worked in various posts within industrial engineering, including factory methods and work studies. He moved to Astro in 1958 as a data control supervisor and in 1959 became chief of support documentation.

G. L. Armstrong In Design Post

Gene L. Armstrong, veteran Atlas program executive, has been promoted to chief engineer-design at General Dynamics/Astronautics.

Armstrong succeeds G. L. Hansen, now vice president and program director-Centaur. He reports to W. W. Withee, vice president-research and engineering.

G. L. Armstrong

Armstrong has served as chief project engineer-Atlas and prior to that was senior project engineer for airborne systems. Joining GD/Convair in 1954, Armstrong was among the first engineers assigned to the Atlas program and rose to a post as chief applied mechanics engineer prior to his two most recent assignments.

Holder of a master of science degree from the University of Illinois, Armstrong worked with Boeing Airplane Co. and North American Aviation before joining the General Dynamics organization.

Ehricke Heads Study Group

(Continued from Page 1)

Centaur organization. They will shift to departments with the 900 series. Supervision will notify employees involved. Essentially, these are employees currently working on Centaur full time. Where Centaur work is being accomplished on joint facilities with the Atlas, changes are not contemplated. For instance, tank assembly work will continue under present arrangements and departments, but Centaur final assembly and checkout will become a part of the new organization.

Dempsey described the present reorganization as similar to steps taken when the "Model 7" group was formed within the Convair San Diego function.

However, he emphasized that Centaur is not being separated into another General Dynamics division. All GD/Astronautics Division staff members continue to have policy responsibility for areas within the program.

"We must make these changes as swiftly and efficiently as possible within the realms of good business practices," Dempsey said. "Much of the future of Astronautics depends on our performance with Centaur in the immediate future."

General Dynamics NEWS

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FLAGSHIP NEWS

PUBLISHED WEEKLY FOR THE EMPLOYEES OF AMERICAN AIRLINES

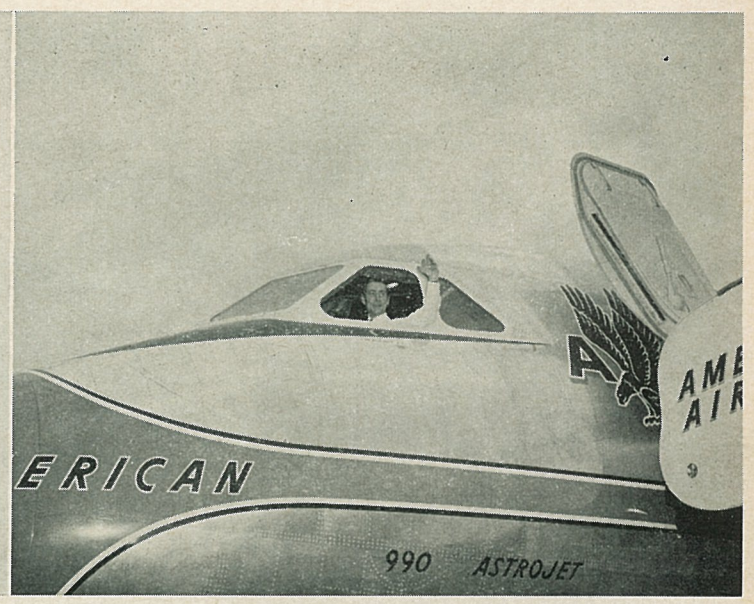
990 Astrojet Joins AA Fleet

First Delivery Made At San Diego; 2nd Plane Due at TULE

Traffic Rose 6% in Month Of December

Another Record

U. S. Counts on Airline Employees in 'Visit U.S.A.' Plan: Gilmore



AT TAKEOFF—First American Airlines 990 to leave San Diego, second accepted by airline at GD/Convair, is shown at Lindbergh Field just before takeoff for Tulsa, then on to New York, Jan. 12. In shot at left, American stewardesses line ramp steps with an American Airline station agent at bottom. Standing at his left are A. W. Perkins, AA customer representative at GD/Convair; Dick Parsons of GD/Convair commercial contracts; GD/Convair pilot John Knebel. In shot at right, American Airlines acceptance pilot W. K. Owen waves from cockpit before liftoff. In center is reproduction of American Airlines publication announcing 990 deliveries and due date at TULE, code name for Tulsa Maintenance Base. Below, 990 is fueled and serviced at terminal with GD/Convair plant in background.

Photo From Inside Looking Out Is Off-Beat But It Tells Story

Fortunately, Dave Mathias, General Dynamics / Astronautics photographer currently stationed at Schilling AFB, does not suffer from claustrophobia. That means he isn't afraid of being shut up in a trunk, or some such place.

The tense might be wrong, however. Maybe it should be past tense: "Dave Mathias once upon a time did not suffer from claustrophobia . . ." That much appears to be certain, because not long ago at Forbes AFB he slipped his 5 ft. 5 in., 120 lbs. into a 33-in. diameter device that Rocketdyne uses at Astro main plant as well as at off-site bases to check out components connected with the Atlas missile propulsion system.

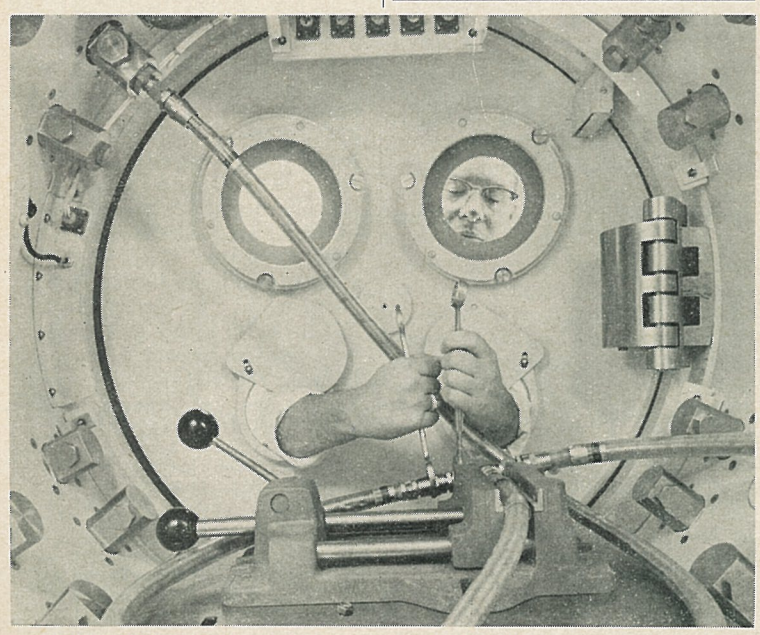
The experience well may have given him the darnest case of claustrophobia on record. However, when he crawled out—claustrophobia or not — he had recorded on film a real strange looking picture of a Rocketdyne technician at work.

INSIDE — Reminiscent of cartoon "People Are No Damn Good" and also of "Cremation of Sam Magee" is this photo of Photographer Dave Mathias on inside looking out.

Technicians Author Cryogenic Article

An article by two General Dynamics/Astronautics technicians appears in the January issue of Western Metalworking.

W. R. Atkins and J. W. Whitehead, both Dept. 756, have worked extensively in GD/Astro's pioneering cryogenic test facility. Their article is titled "Material Test Methods at Cryogenic Temperatures."



WHAT BIG EYES!—This is scene inside "components pressure test unit" during checkout of items used in Atlas missile propulsion system. Those aren't shirtsleeves, but tight-fitting cloth that seals off air leaks.

F-106 Flies Record Sorties in Month

What may be the record for utilization of a single F-106 was chalked up during the month of December by a Convair-built jet interceptor based at Castle AFB, Calif.

The craft flew an individual total of 67 hours and 50 minutes in 35 sorties during the one month. It is attached to the 456th FIS. GD/Convair field service representative at the base is C. W. Stevens.

VALUE COORDINATOR NATIONAL DIRECTOR

C. W. "Smoky" Doyle" spares value control coordinator at GD/Fort Worth, has been appointed a national director of Society of American Value Engineers (SAVE).

Larry Miles, the "father of value engineering" and president of SAVE, selected Doyle for "his outstanding contribution in the field of value engineering."

C. W. Doyle

Doyle is also a director of the Dallas-Fort Worth SAVE chapter. He has appeared as guest speaker on the subject at a number of value engineering seminars across the country and assisted a number of subsystem vendors in organizing value-control programs.

The new SAVE director has also presented value engineering seminars to Army, Navy and Air Force groups.

Research Engineers To Address Forum

Two GD/Fort Worth manufacturing research engineers will appear on the Symposium on Electroforming, conducted by American Society for Testing and Materials, Feb. 6 and 7 in Statler Hilton Hotel, Dallas, Tex.

They are D. L. Allie, who will speak on "Electroforming Hardware for Aerospace Vehicles," and E. W. Turns, who will present a paper on "Alloy Electroforming for High Temperature Aerospace Applications."

Horne Says Industry in Danger Of Losing Quality in Products

Reliability has become a question that management must understand, and not just "support," C. F. Horne, General Dynamics/Pomona president, told the 8th National Symposium on Reliability and Quality Control early this month in Washington.

Making the keynote speech on "A Management Appraisal of the Reliability Challenge," Horne said it is easy for a top manager to say "Well, I support you." The question, he added, is whether he understands what is going on.

In this day and age, he said, if management does not have a reasonable understanding of reliability, quality control and related matters, trouble is in the offing.

The military, he added, is cognizant of its troubles and responsibilities in this field and is doing all it can to make its requirements clear.

In regard to reliability in general, Horne stated:

"I find it very difficult to find any high quality goods in consumer products. I think we are in grave danger of losing what we had many years ago, when our artisans took personal pride in the reliability and quality of their products."

This means, he said, that all levels of management have got to take personal and individual pride in the product, assuming the role the artisan once had.

"Let me emphasize," Horne stated, "that today reliability is strictly tied in my mind with the question of national security and national survival.

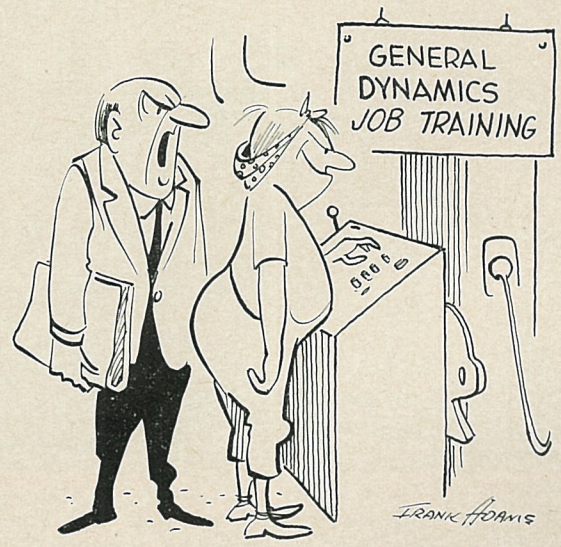
"If we are going to protect the freedoms that are essential to our democratic philosophy, as well as stay in business, we have got to find ways of producing better and more reliable equipment at less cost," he declared.

Canadair to Start Value Engineering

E. D. Heller, General Dynamics/Pomona value control coordinator, and B. P. Schroeder, educational services value control training supervisor, will journey to Canada next month to help establish a value engineering program at Canadair Limited.

Frank W. Clark, Canadair's general supervisor of training, and John Gilmore of Canadair's training department attended GD/Pomona's 19th value engineering seminar, which was concluded Jan. 26, in preparation for conducting the seminar program at Canadair.

Canadair's first value engineering seminar will be conducted Feb. 12-23.



"The idea is to master the machine, Mrs. Gaskin . . . We don't use the term 'outwit' . . ."

PROUD CRITIC—GD/Astro artist Merle Walker watches as son Jerry, 10, is absorbed in drawing one of series of comic strips on which he works regularly. Jerry, who both writes and draws his picture stories, has been dabbling in art since three years old.

Young Artist

GD/Astro Son, 10, Absorbed In Comic Books—He Draws 'em

SCHILLING AFB—At an age when most youngsters settle for reading comic books, Jerry Walker, 10, son of GD/Astro's Merle D. Walker, Dept. 322-9 here, is drawing his own!

No crude school boy sketches, but fully-plotted cartoon series of near-professional quality are turned out by Jerry with great regularity.

Usually taking a science fiction tack, his picture stories include well-chosen "headline" panels depicting the high point of the plot, and show a skillful change of viewpoint from panel to panel.

"Jerry reads comic books avidly, and has learned the techniques of writing and drawing solely from his own observations," said his father. "While I encourage his artistic activity, I have never coached him or given him formal instruction."

This is significant because Walker is art and illustration coordinator for support publications here, and a trained artist.

This month one of his oil paintings was entered in a competition at the National Academy of Design, New York, while other of his works are displayed in galleries from coast to coast.

Space Conditions Simulated In Hunt For Life Ingredients

Experiments conducted by a General Dynamics scientist have indicated that organic compounds —the basic ingredients of life— are now being formed in outer space.

Dr. Rainer Berger, GD/Astronautics space scientist, announced results of his studies in the Proceedings of the National Academy of Sciences.

He also reported on them recently at a scientific symposium in New York City, and at NASA's Goddard Space Flight Center, Greenbelt, Md.

Theorizing that organic substances could result from the effect of cosmic radiation on materials found on many comets, icy meteors or larger cold bodies comprising much of the mass of the universe, Berger simulated the situation in the laboratory.

He froze a mixture of methane, ammonia and water at the temperature of liquid nitrogen (about 383 degrees below zero), and bombarded it with a stream of protons (hydrogen atom nuclei). Radiation bombardment was accomplished with the 60-inch cyclotron at Crocker Laboratory, University of California at Berkeley.

After 200 seconds, the frozen mixture yielded urea, acetamide and acetone. The period of radiation exposure approximated proton impact frequency anticipated during the lifetime of a comet of the age of the solar system.

Because the experiment approaches duplication of potential occurrences in outer space, indications are that organic compounds are formed on a large scale throughout the universe.

"However, there is a big step between the production of simple chemical materials, and what we regard as 'life,'" Berger cautioned.

In presenting results of his experiments, Berger cited work of other scientists in related areas of research. These included Dr. Stanley Miller and Dr. Harold Urey, University of California, San Diego; Dr. Melvin Calvin and associates, University of California, Berkeley; a Fordham University team headed by Dr. Bartholomew Nagy, and others.

GAY '90s??—GD/Astronautics' base activation sponsored January Management Club meeting, but received help from product support for ticket sellers. Girls, all employees, show off their striking costumes. Girls are Gloria Anderson, Sheila Gallagher, Carrol Laywell, Barbara McDonald, Jeanice Shairah and Betty Wise.

Fire Loss Zero At GD/Convair; A Record Year

Insured fire loss at General Dynamics/Convair for the entire year of 1961 was exactly zero for the first time on record.

In an end-of-the-year appraisal of the preceding twelve months, F. G. Merritt, chief of industrial security, reported no loss from fires. "This enviable record is a direct result of the interested cooperation of all GD/Convair departments with our stepped-up program of housekeeping, fire prevention, and fire inspection," he said.

"Potential fire hazards have been recognized and eliminated by continuous inspections by the fire inspector, round-the-clock coverage by every fireman, and intelligent concern of all employees and supervisors."

Fire department activities during 1961 included response to 102 minor fires. Of these, 33 involved wood, paper or trash; 24, flammable liquids; 38, electrical equipment; and 7, magnesium.

Eleven fire apparatus runs were made to automatic sprinkler alarms and 57 responses to emergency landings on Lindbergh Field. Ten Air-Evac stand-bys were made for patients on mercy flights into Lindbergh Field, and one response was made to a reported bomb aboard an aircraft at the San Diego airport.

Merritt attributed the no-loss record in large measure to fire department Chief D. D. Dimmitt, who has accelerated the drill program and initiated new fire prevention policies.

Dimmitt heads a crew of 61 firemen and seven officers who are responsible for fire protection of GD/Convair Plants 1 and 2, including GD/Electronics facilities at these points; the seaplane ramp; Advanced Products; Model 8 field operations; Corporate Office Bldg. 19; Lindbergh Field. One fireman is on duty days at Rose Canyon and regular inspection made at Rosecrans and Melrose warehouse sites.

Delta 880s Streak To New Speed Marks

Two more official speed records were chalked up this month by Delta Air Lines' Convair 880s.

One 880 jetliner speeded from Los Angeles to Atlanta, Ga., in three hours, one minute, and 16 seconds, aided by 80 mph tail winds. This cut nearly 45 minutes from the previous record.

Another 880 made the distance between Los Angeles and New Orleans in two hours, 48 minutes, breaking a June 1, 1961, record. Previous best time was three hours, 27 minutes, 12 seconds.

Both flights were made Jan. 15 and timed by National Aeronautical Association.

Sonic Boom Program Held in Milwaukee

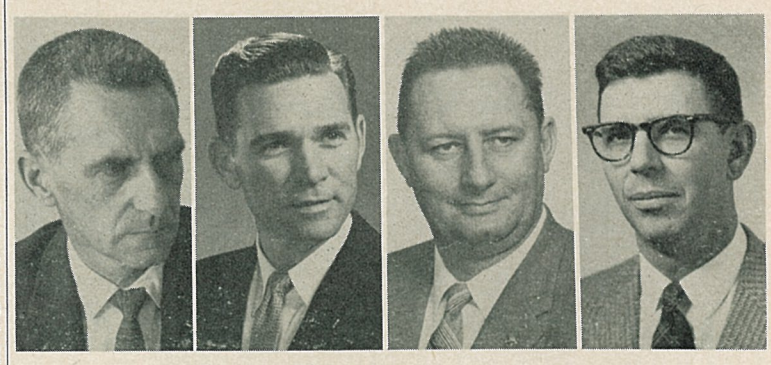
A one-day SAC-GD/Fort Worth B-58 sonic boom orientation program was conducted recently for civic, business and news media representatives in Milwaukee.

Presenting the program were: Brig. Gen. Howard W. Moore, Commander 19th Air Division; Col. F. L. O'Brien Jr., commander 305th Bomb Wing; Lt. Col. R. G. Darelius, Carswell AFB information officer; L. L. Turner, special assistant to the GD/Fort Worth president; and Mal Holloway, of the president's office.

HIGGINS PANELIST ON IND. SECURITY

George D. Higgins Jr., General Dynamics director of industrial security, will be among panelists tomorrow (Feb. 1) at an American Management Association conference in New York City. Higgins, president of the American Society for Industrial Security, will discuss key elements in industrial preparedness, including development of a company's plan for operating under emergency conditions.

PIONEERS—Among those who began Atlas program more than a decade ago were, from left: C. S. Ames, W. H. Patterson, Karel Bossart, Jack Bowers, Lloyd Standley.



Other members of Atlas pioneer group were, from left: Dr. Howard Dunholter, W. B. Mitchell, James W. Crooks, Frank J. Dore.

Dedicated Band Began Task That Led to Atlas

(With this installment, No. 76, General Dynamics NEWS continues history of noteworthy Dynamics products, in this case early research which culminated in Atlas missile.)

Gen. Carl Spaatz disclosed Air Force interest in an intercontinental missile program in August, 1948, when his farewell report as chief of staff noted that "special emphasis should be given to development of a supersonic surface-to-surface missile capable of carrying an atomic warhead 5,000 miles."

Actually, such a program had been initiated secretly three years earlier. The Air Technical Service Command invited the aircraft industry on Oct. 31, 1945, to submit proposals for participation in a broad missile research and development effort. The invitation specified four ranges, the shortest 20 to 175 miles, the longest 1,500 to 5,000, placed emphasis on supersonic speeds, and established control and accuracy criteria for each range.

Convair assigned this project to Vultee Field, already at work on short-range rocket and ramjet designs. A formal proposal was forwarded to Dayton Jan. 10, 1946. This resulted in a contract April 22 for a $1,400,000 study and development program. In June Wright Field requested acceleration of the project and increased contract funds to $1,-893,000.

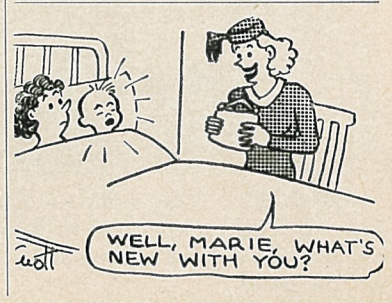
Karel J. Bossart, a Belgian-born engineer and chief of structures at Downey, Calif., (Vultee Field) emerged at once as the genius of what was to be a long and difficult undertaking. He obtained appointment as project engineer and was soon surrounded by a small group of associates whose enthusiasm and esprit recalled that of the Von Braun group in the Germany of the 30s. Among these engineers (all holding key positions in the Atlas program 10 years later) were W. H. Patterson, F. J. Dore and W. B. Mitchell, aerodynamicists; Charles S. Ames, design engineer; Lloyd W. Standley, assistant project engineer; Dr. Howard Dunholter, thermodynamicist; and James W. Crooks, electronics engineer.

"We were bitten by a bug," Bossart recalled in later years. "We had the inspiration of missionaries. We had to convince people, do a selling job. We had to work hard at it, and we did."

There were two broad approaches to the problem of sending a warhead nearly a fourth of the way around the earth. It might be carried by a winged, air-breathing vehicle, perhaps a ramjet flying in the stratosphere. Or it might be rocketed on a ballistic trajectory high above the earth, traveling like a giant artillery shell.

The German Army began ballistic missile studies in 1930, following a decade of intensive rocket research by scientists and technicians. Military specifications for the A-4 missile—later renamed the V-2—were established early in 1936, and the first full-sized V-2 was launched in 1942. This weapon was used beginning Sept. 8, 1944, to bombard London and other Allied targets from distances up to 200 miles.* The Germans also planned an intercontinental missile, the A-9/A-10, with which they hoped to strike New York City from Europe by 1946. This would have employed two stages, the first a mammoth 85-ton booster rocket, the second a V-2 modification with vestigial wings. (On re-entering the atmosphere this section was expected to acquire lift and climb back out, thus stretching its range with a series of skips.)

***Data on the V-2: DIMENSIONS—length 46 ft., diam. 5 ft., 5 in. (across fin 11 ft., 8 in.); WEIGHTS—empty (with warhead) 8,818 lbs., takeoff 28,440 lbs.; FUEL—alcohol (25 pct. water) 8,740 lbs., liquid oxygen, 10,975 lbs., rate of consumption, 280 lbs./sec.; THRUST—at takeoff 55,100 lbs., exhaust velocity 6,725 ft./sec.; ACCELERATION — at takeoff 0.9g, at burnout 5g.; COURSE BY SECONDS—vertical 4, passes Mach 1 at 25, completes tilt to 49 deg. at 54, burnout at 60-65; VELOCITIES—max. along trajectory 1 mile/sec., at impact 3,000-3,600 ft./sec.; HEIGHTS—at burnout 13.7 miles. at apogee 50-56 miles; RANGE—199 miles.**



New Service Emblem Design Adopted For General Dynamics

Service emblems of a new General Dynamics design are being issued at most divisions.

They replace emblems of the old Convair design as well as one used to recognize service for the old Stromberg-Carlson division. The new pins carry the familiar "GD" symbol along with a numeral indicating the number of years involved.

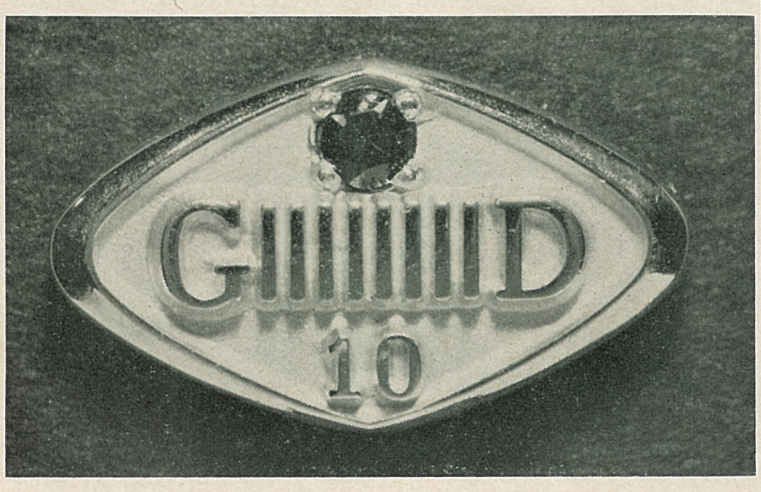
The 10-year emblem carries a small emerald, the 15-year a sapphire, the 20-year a ruby. Beginning with 25 years and continuing to 50 years emblems involve dark backgrounds and diamonds of increasing size.

Up to 15 years, emblems are issued either as tie tacks, lapel buttons or pins, as desired. For feminine employees with 20 years or more service, emblems are also issued in bracelet form; and for men, tie bars are offered.

The new emblems are being issued as they come due at most points in San Diego (including General Dynamics/Electronics, GD/Convair and GD/Astronautics) and at GD/Fort Worth and GD/Pomona. In Rochester, N.Y. stocks of the new emblems have not yet arrived but are expected soon and will be issued to GD/Telecommunication and GD/Electronics personnel as soon as available.

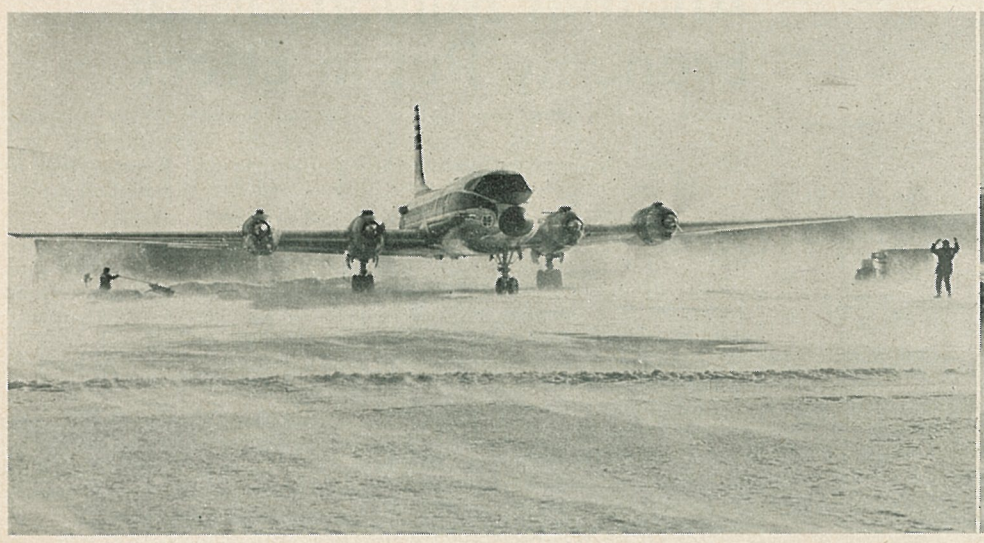
Meanwhile, stocks at most points are limited at this time and insufficient to permit sales to employees who might wish to replace old-design pins with the new ones. Ultimately, however, they will be made available at cost.

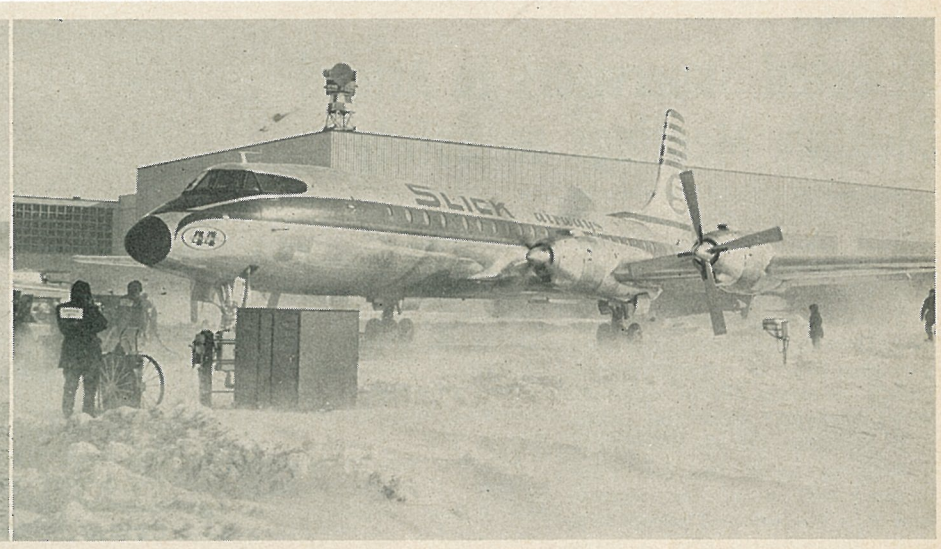
The attractive new design is intended to emphasize General Dynamics Corporation service, rather than service in any particular division. Replacement of old pins is optional.



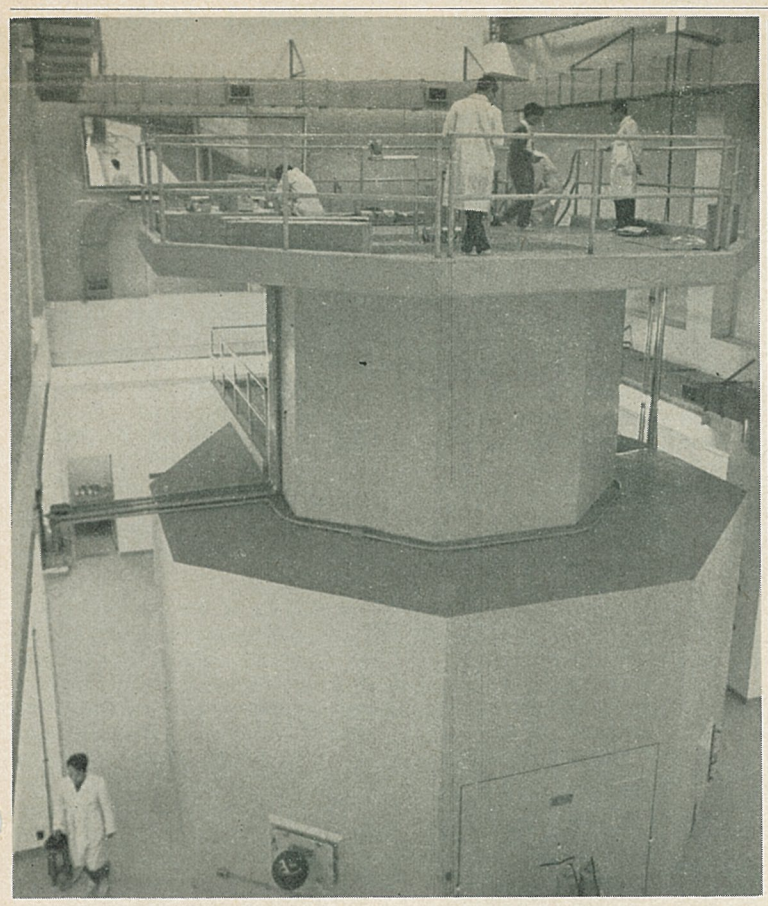
10 YEARS—Several times natural size, this is photo of new service emblem for General Dynamics.

30 YEARS—Service emblems recognizing 25 years and more of service include dark background.





SNOWY TAKEOFF—Canadair Forty Four left Montreal Jan. 17 in teeth of blizzard but arrived safely at Burbank, Calif., where it will go into service carrying freight for Slick Airways. Temperature was about zero when photos above were snapped on eve of departure.



REACTOR IN JAPAN—A missionary gift from U. S. is atomic research reactor supplied and installed by GD's General Atomic Division at St. Paul's University in Yokosuka, Japan.

TRIGA, Gift to Japanese, Takes Up Research Role

A unique missionary gift in the form of an atomic research reactor is in operation at St. Paul's (Rikkyo) University's new Nuclear Research Institute in Yokosuka, Japan.

Supplied and installed by General Dynamics' General Atomic Division, the self-regulating TRIGA is the result of $300,000 raised by American Episcopalians in free will offerings. In addition, various Japanese concerns contributed funds for buildings and other facilities of the Institute.

"Through this gift, American Christians will share the potential and realized blessings of atomic energy with a people who, in the past, have known little of its blessings but much of its curse," the Rt. Rev. Arthur Lichtenberger, Presiding Bishop of the Episcopal Church, said.

Dr. Frederic de Hoffmann, president of General Atomic, was present for the startup of the reactor last month and since then the University reported that TRIGA is being brought up to its normal, steady-state energy level of 100 thermal kilowatts. It will be used for academic, agricultural and industrial research, medical applications, and the training of nuclear scientists and engineers. Radioisotopes will be supplied to hospitals.

New Radar Monitor Device Developed As Continuous Check on Performance

A new, continuous radar performance monitor (RPM) that can quickly and accurately detect malfunctions in both long-range and short-range radar sets is being produced by General Dynamics/Pomona.

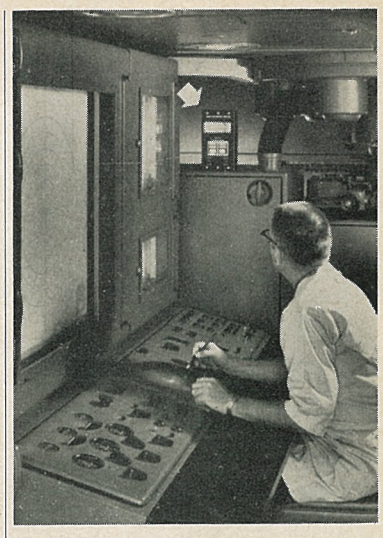
A GD/Pomona development, RPM solves a long-existing radar problem — degradation of long-range detection that may go unnoticed for an extended period of time. The unit is currently being produced for the U. S. Army Signal Corps.

Loss in detection range sometimes is due to a malfunction of the radar, but may also be caused by externally-produced interference, commonly known as "jamming." In either case, the loss of range may occur at any time, and usually is not immediately discernible.

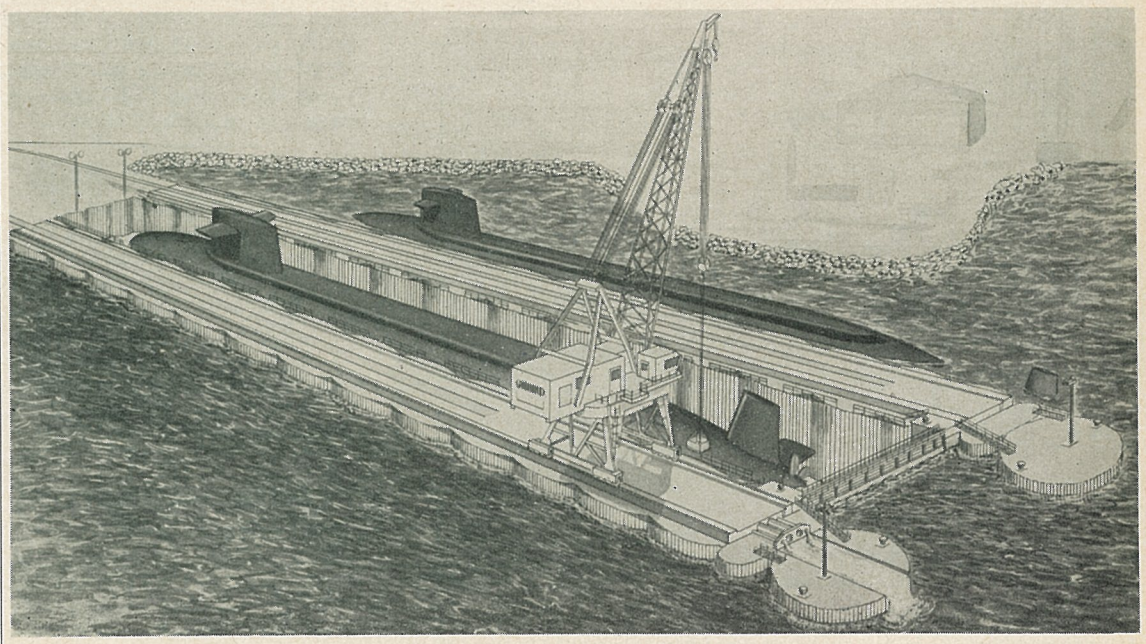
The new monitor eliminates time-consuming procedures required with standard test equipment to determine radar effectiveness. It displays the maximum detecting range of the radar, and isolates any malfunction to either the receiver or the transmitter. And it also gives an instantaneous indication when a variation in range is caused by jamming.

The unit requires no auxiliary test equipment or accessories for its operation, and it contains self-checking features to insure that indicated trouble is in the radar and not in the monitor. No major modifications of any radar circuitry are required for its installation.

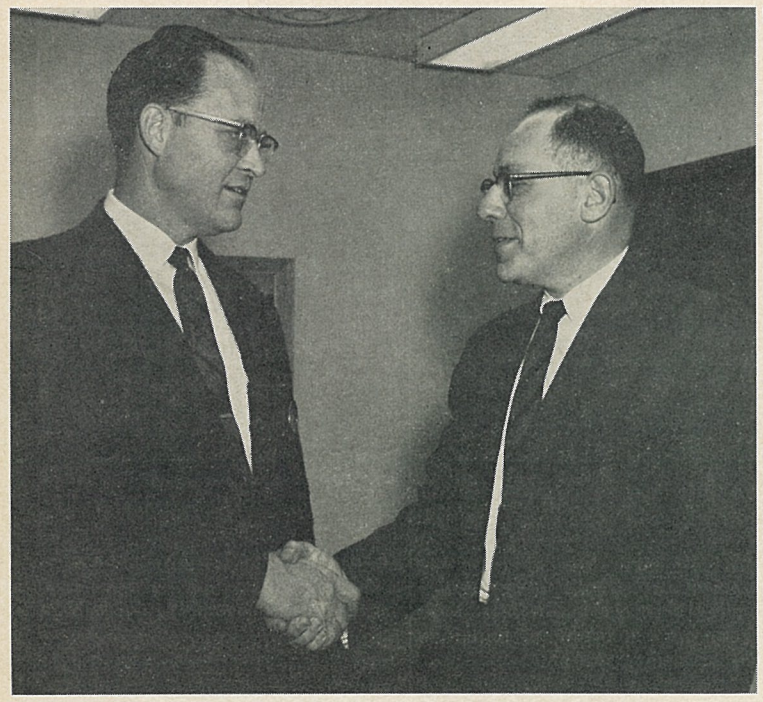
In a tactical situation where several radars are assigned to cover a specific area, RPM indicator panels for each set may be located in a command center. Thus, if one radar loses detection range, it is noticed immediately and corrective measures may be taken.



CHECKING — R. W. Donnelly of GD/Pomona radar systems group glances at radar performance monitor (arrow) to check possible malfunction.



DOCK-TO-BE—Dredging is under way at GD/Electric Boat, Groton, Conn., for 12,000-ton capacity graving dock, which when completed in late fall will be able to drydock any nuclear submarine now envisioned. Equipment is removing 135,000 yards of silt which barges dump at sea. The dock will be 512 feet long.



FIRST OF KIND—J. A. Lehman, Dept. 541-7, receives 25-year service pin from Mort Rosenbaum, GD/Astro executive vice president. Lehman's pin was first of new General Dynamics design to be awarded.

Selected Supervisors to Attend Monthly Meetings on Safety

Revised operating methods for the Workman's Safety Committee will be placed in effect at General Dynamics/Astronautics next month.

The new arrangement will emphasize responsibilities of line supervision in a comprehensive safety program. It is administered by safety section of industrial relations (Dept. 130-8).

Starting point for the reorganized system will be monthly meetings for selected supervisors from departments with a large percentage of non-office employees. Following sessions, which will be conducted by safety section representatives, supervisors will designate department safety committeemen to assist.

Committeemen will wear the familiar badge with green cross on a white field, and will serve as the supervisor's assistant in observing department work habits.

At the end of two months, another department supervisor will attend indoctrination sessions, and a new committeeman will be appointed.

"The new program stresses the human element in accident prevention," said J. W. Garrison, chief safety engineer. "Rigid enforcement of safety regulations is essential, but accidents caused by errors in judgment or carelessness can be avoided only through constant employee effort plus effective guidance by supervision."

As an example, Garrison pointed out that 157 "serious medical" cases recorded at Plant 71 during 1961, only nine were due to violations of safety regulations.

The new system will result in constantly growing nucleus of recently indoctrinated supervision, with each department having a total of six who have served on the safety committee at the end of the year.

Automation Subject For Next Club Talk

Featured speaker at the February meeting of General Dynamics/Astronautics Management Club will be John Diebold, president of the eastern management consultant firm, John Diebold & Associates, Inc.

The meeting is scheduled for Feb. 14 in the Caribbean Room, El Cortez Hotel. A social hour begins at 6:30 p.m., followed by dinner at 7:30.

Diebold will speak on "Management and Automation." Data processing (Dept. 101) is the sponsoring department.

W-2 Forms in Mail To Astro Employees

Mailing of W-2 forms direct to homes of GD/Astronautics employees, both in San Diego and at off-site bases began early this week.

Each employee will receive two copies of the form, which is an annual wage and withholding tax statement. One copy is for attachment to federal income tax returns, while the other is provided for personal records.

20-Year Pin Among 'Lost-Found' Items

A Convair 20-year service emblem found in Bldg. 5 is among a growing "stock" of lost and found items now being held for owners at Astronautics' employee services office, Bldg. 8.

Many items are awaiting claiming in the files. Employees who have lost personel items are urged to check the file.

MERCURY INTEREST—Cape Canaveral has been rallying point for news gatherers in connection with Atlas-powered Mercury flight. Recent half-hour CBS radio broadcast featured panel of four snapped by Bob Weissinger, Astro photographer. From left, they are Dallas Townsend, newscaster and moderator; Arthur Godfrey, B. G. MacNabb, GD/Astro operations manager at AFMTC, and Lt. Col. John Powers, public affairs officer, NASA Manned Spacecraft Center.

Ice Skaters Schedule Weekend at Big Bear

Reservations are open to all Convair and Astro ice skaters for a weekend trip to Big Bear, Feb. 23-25.

Price for the jaunt is $11 per person. Deadline for signing is Feb. 16.

Astro people may call Dixie, ext. 600, main plant; Convair and Electronics, CRA headquarters, ext. 1245, Plant 1.

MAULER CONTRACT AWARDED TO HUGHES

A follow-on contract in excess of $750,000 has been awarded to Hughes Aircraft Co. for continued development of an advanced guidance unit for the Mauler tactical air defense system missile.

The award was made by General Dynamics/Pomona, prime contractor on Mauler to the U. S. Army. Mauler is being developed by GD/Pomona for the Army Ordnance Missile Command, Redstone Arsenal, Ala. Los Angeles Ordnance District, Pasadena, is contracting office.

The Mauler system, designed to provide air defense for troops in the field, will include tracked vehicles carrying detection and fire control equipment and a number of solid-fuel ground-to-air missiles.

Weather Ignored For South Seas Party

LINCOLN AFB — In contrast to prevailing Nebraska weather, GD/Astro Wives Club here created a South Seas atmosphere for its January meeting at Town and Country in Lincoln.

Some 70 members were greeted by muu muu-clad hostesses, Mrs. William Sessions, Mrs. Bruce Beebe, Mrs. William Hunn, and Mrs. Bernie Somer, who presented each with a lei.

Club officers were given hula skirts which they wore throughout the luncheon meeting, and table decorations and door prizes completed the tropical scene. The program featured a movie on Tahiti.

Vernon Heger Heads New Astro Activity

Vernon G. Heger, veteran GD/Astronautics communication supervisor, has been named internal communication administrator, reporting to C. T. Newton, director of communication at Astronautics.

Heger will serve as a "project office" for internal campaigns such as safety, cost control, etc., and develop standards for internal communication.

Education Society To Hear Astro Man

Norman M. Molesko, a member of GD/Astro's human reliability requirements group (Dept. 146-7), will address the San Francisco Psychoanalytic Education Society Feb. 10 in San Francisco.

Molesko will speak on "Human Factors/Reliability of Man in Space and on Lunar Missions."

Astro Lens Will Hold Instruction Session

Astro Lens, ARA camera club, will feature an instruction program at its next meeting at 7:30 p.m., Feb. 4 in the Photo Arts Bldg., Balboa Park.

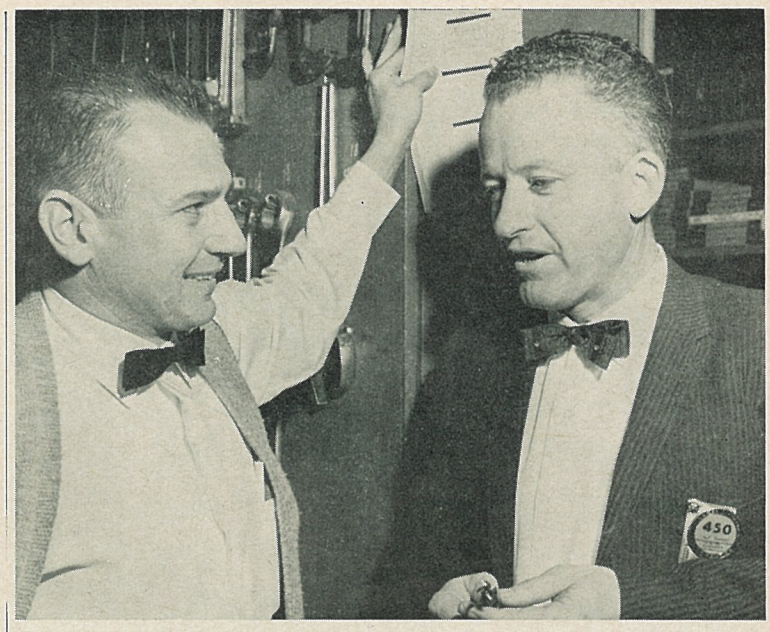
Each member has been asked to bring his camera, light meter, and two pictures for use during a workshop session.

February Salvage Yard Hours Set

Saturday sales for General Dynamics employees at salvage yards at GD/Convair and GD/Astro for the next four-week period:

GD/Convair—Feb. 3 and Feb. 17.

GD/Astro—Feb. 10 and Feb. 24.



TOOL SAVERS—R. T. Morris and M. O. Ramsey discuss CIP concerning perishable tool costs for off-site bases. Two worked jointly on proposal which will save GD/Astro over $1-million per year.

Another Million Dollar Economy Put in Effect

Third of its kind for 1961, a Cost Improvement Proposal (CIP) with savings estimated at over $1 million annually, was approved at General Dynamics/Astronautics shortly before year's end.

The proposal was submitted jointly by R. T. Morris, Dept. 460, and M. O. Ramsey, Dept. 450, and is expected to save $1,037,376 in its first year of use.

Other "super-savers" approved at GD/Astro during 1961 included a spare parts support contract consolidation proposal from J. V. Dickson, Dept. 110, with savings of $1,078,000; and the suggestion by J. L. Bigley, Dept. 331-3, for "as is" storage of excess test equipment which saved over $1,-723,747.

The Morris-Ramsey proposal concerns reduction of costs to GD/Astro for perishable tools required in activating Atlas missile sites throughout the country.

Under a former method, bases beginning activation prepared their own estimates of tools required, then procured and stocked them throughout the period of operation. Because of the pioneering nature of the base activation program, these estimates sometimes exceeded actual need by as much as 50 per cent.

The CIP sparked a study of actual tool requirements for various base configurations. In addition to standardizing original requirements, it called for a central tool routing center, established at GD/Astronautics' main plant, to regulate transfer of tools from one base to another as activation progressed.

Thus, bases nearing completion could frequently ship their tools to "down stream" facilities where activation was less advanced. Provision for transferring surplus tools to bases where they were needed is also included.

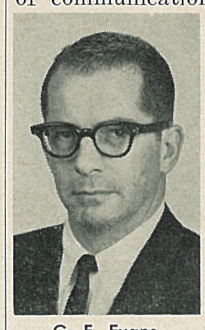
A record of their approved CIP will be placed in the personnel record of the originators. In addition, because their proposal resulted in extraordinary savings, Morris and Ramsey will be considered for the annual President's Award.

The CIP program is administered by GD/Astronautics' organization and systems (Dept. 170) to provide salaried employees with an established channel for submission of constructive proposals.

A similar Employee Suggestion (ES) program is in operation for hourly employees with originators receiving cash awards for approved suggestions.

EVANS APPOINTED EDITORIAL MGR.

Gladden F. "Denny" Evans has been named manager of editorial section of General Dynamics/Astronautics communication department by C. T. Newton, director of communication.

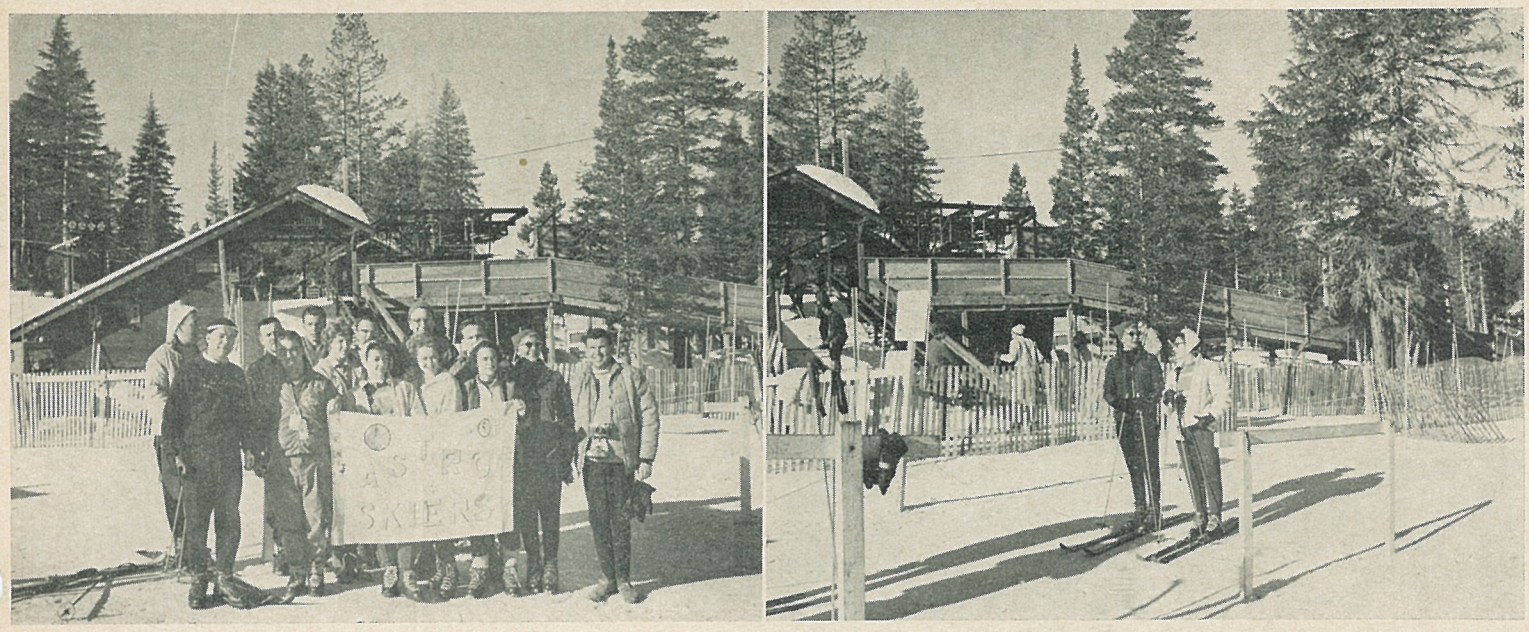


G. F. Evans

Evans joined Astronautics after working as public relations director for an investment group in the Anaheim area. Prior to this he was supervisor of a writing and editing group of Hughes Aircraft Ground Systems Division at Fullerton.

A native of Mount Vernon, N. Y., Evans received a BS degree in education (English and psychology major) from the University of Maine. He has taken advanced studies at UCLA and was an engineering student in the Army Specialized Training Program. His background includes work in general and industrial advertising, technical publications, engineering services, public relations and promotion.

TWIN "HAMS"—Despite almost total paralysis, Henry and Jack Johnson are enthusiastic radio operators. They visited ARA Radio Club recently.



SNOW SPORTS—Part of ARA Snow Ski Club group who carried banner to Mammoth Mountain and Lake Tahoe on recent four-day trip. At right are Helen Rockafeller and ARA Ski Club president Joan Brennan. Members plan return trip in February.

Powder Lures Astro Skiers

Powdery snow and low mountain temperatures have signalled the start of a lively season for members of ARA Snow Ski Club.

Fresh snow at Big Bear drew a group of club members to that area last weekend, and plans for a return trip, Feb. 10-11, are now being made. The up-coming event will be discussed at a business meeting at 7:30 p.m., Feb. 7 in ARA Clubhouse.

Reservations will be accepted through Feb. 2 by Gene Rockafeller, ext. 2868, and Hal Moore, ext. 1487, will coordinate transportation arrangements.

Over the New Year's holidays, 24 members traveled to Mammoth Mountain and Lake Tahoe, taking side trips to Heavenly Valley and Alpine Meadows.

Earlier this month, 35 members and guests attended a club social meeting including dinner and movies at the Rheinlander Restaurant, La Jolla.

ARA-CRA Gun Club Plans Rifle Shoot

The joint ARA-CRA Gun Club will feature a small bore rifle shoot as well as its usual monthly trap and skeet shoot at the Gillespie Field range at 9:30 a.m., Feb. 4.

Ezra Johnson, ARA commissioner, has announced plans to maintain records of .22 firing and classify shooters with a view to encouraging competition within the club.

At a January event, top scorers were H. Schnaubelt, R. Harrington, G. Cherry, D. Farrelly, W. Prentiss and R. Andrews.

Additional information on the club and its activities is available from Johnson, Astro ext. 2283.

Riding Club Elects New Officer Slate

Officers for 1962 were elected at a recent meeting of ARA Riding Club.

New president is Les Allen, with Sandy Sanders, vice president; Ardelle Sorkness, secretary; Jack Harrison, treasurer; and Bill Dortch, trail boss. Art Smith Sr. will handle membership and promotion; Harrison, publicity; and Duffy Lewis and Evelyn Harrison were named equipment stewards.

Riding Club meets the second Tuesday of each month in ARA Clubhouse. Next meeting is scheduled for 7:15 p.m., Feb. 12. Dues of $5 for 1962 are payable at that time.

PLAY CHECKERS? TOURNEY PLANNED

John C. Miller (Dept. 101-7) is interested in contacting top checker players at Astronautics with an eye to arranging an Astro plant championship tournament or regular ARA-sponsored league play. He may be reached at ext. 871.

Sports & Recreation

Candidates Sought For ARA Queen Title

A colorful contest to select a Queen—"Miss or Mrs. ARA"—to reign over major ARA events in the San Diego area during 1962 has been announced by General Dynamics/Astronautics Recreation Association.

Nominations are now being accepted. Fifteen will be selected to serve as models in the annual ARA Fashion Show.

Crowning the ARA Queen will climax the show which will be held this year on March 28 in Bldg. 2 lobby. Worth's of El Cajon is assisting ARA in the event.

Queen candidates must be employed by GD/Astro, the Air Force Plant Representatives Office, or associate contractors. Each must be formally nominated by a fellow employee using application forms available from ARA representatives located throughout GD/Astro's San Diego facilities, or at employee services outlets.

Prizes will be awarded the Queen, her court, and the Queen's sponsor.

Candidates will be judged on the basis of personality, poise, and personal charm. (Sheer "glamour" will not be a deciding factor, the judges say.)

Nominations will be accepted until noon, Feb. 8.

Prospective candidates or their sponsors may contact Dixie, ext. 600, for additional information about the contest, and to learn the name of the ARA representative in their area.

Sweeps Slated For Caliente

Entries in the ARA Golf Sweepstakes slated for Caliente Feb. 3 and 4 will be accepted through Friday (Feb. 2) by Dee, ARA headquarters, ext. 1111.

In the January tournament played at Circle "R" course, low gross winners in the 0-12 handicap flight were Mac McCord (77), Jim Jones (81), and Al Bezverkov (82). Larry Failor led low net golfers with 67, while Harry Bodwell scored 70, and Bob Stevens and Ed McKenzie tied at 74.

In the 13-19 handicap bracket, W. M. Robinson's 77 was first, followed by Bill McNabb (83) and Chuck Hopkins (88). Low net scorers were Ernie Stuchly (66), Bob Vukotich (69) and Dick Fletcher (70).

An 87 by F. C. Horner topped low gross shooters in the 20-and-up class, while Paul Williams scored 89, and E. E. Irwin, 92. Low nets were tallied by Dick Torrence (67), Helen Irwin (71) and Lou Maine (76).

Schneider Winner In Shooting Events

Roland Schneider scored a double Jan. 14 by taking honors in both the Police and National events staged by Astro Pistol Club.

Don Smock and Mort Williams deadlocked in the expert class of the Police event with Smock taking honors in a rapid-fire shoot off. Bill Jungh won the sharpshooter event, with John Bennett taking the marksman class.

Trailing Schneider in the National were A. B. Carlson, Glen Myers and Ralph Sanderlin.

New officers for the coming year were to have been elected Sunday (Jan. 28) at a regular shoot, according to Commissioner Bill Geopfarth.

TENNIS MATCHES ARE RAINED OUT

An inter-division tennis match pitting teams from GD/Astro and GD/Pomona at San Diego's Morley Field courts Jan. 20 was rained out before any events were completed. ARA-PRA teams will meet again in matches tentatively slated for August.

New Hunter Safety Course Will Start

A new hunter safety course for General Dynamics youngsters in the San Diego area starts Feb. 17.

Arnold Schrock, instructor, will give three Saturday morning lectures on gun handling and safety at Gillespie Field Clubhouse, 9 a.m.

All young people of Astro, Convair, Electronics families are eligible to sign for the course which is required before anyone under 16 can apply for a California hunting license.

Registration is being taken by Schrock at his home phone, BR-7-4958.

Rockhounds to Visit Yuma Test Station

Next field trip of ARA Rockhound Club is slated for Feb. 10-11 when the group will visit the Yuma Test Station and the region near Imperial Dam.

At the club's January meeting, guest speaker Maxine Scott presented an illustrated lecture on diamonds, and displayed samples of real gems and replicas of famous stones.

The attendance award of a rock hammer was won by Sarah Smith.

Twins Attend Radio Session

Inspiring guests at a recent meeting of ARA Radio Club were enthusiastic amateur radio operators Henry and Jack Johnson.

The twins, who operate with "call signs" WA6QMX and WA6QMY respectively, are both almost completely paralyzed, and must spend much of their time in "iron lungs." They were accompanied by their physician.

The Radio Club meeting featured a "Home Brew" contest, with members bringing home-built radio and electronic projects.

Judged on the basis of neat and skillful construction, winning unit was a mobile transmitter built by John Neal (W6JUZ). Bob Snyder (WA6BLO) placed second with a mobile single side band transceiver.

Next club meeting is scheduled for 7:30 p.m., tomorrow (Feb. 1) in the Radio Room, ARA Clubhouse.

Net Club Proposes Novice Tournament

GD/Astro and Convair tennis enthusiasts who have failed to reach the semi-finals of an ARA or CRA singles tournament during the past year are eligible to enter a novice tournament planned for next month.

Organized by ARA Tennis Club, the tournament will be played on Morley Field courts, Feb. 17, 18, 24 and 25. Prospective participants may enter by calling ARA Commissioner Ben Cendali, Sycamore ext. 58, before Feb. 12.

No entry fees will be charged and tennis balls will be provided. Trophies will go to winners and runners-up in men's singles and doubles, women's singles, and men's consolation winner.

Mendoza Is Veep Of Recreation Council

Ray Mendoza of GD/Astronautics was installed as vice president of the San Diego Industrial Recreation Council for the coming year at an installation dinner Jan. 20 at Point Loma Inn.

Dick Mitchell, chief of employee services at Astro, served as emcee and installing officer.

ARA Calendar

(GD/Astronautics Recreation Association has some 45 activities in operation for employees. For information, call ARA Headquarters, ext. 1111.)

★ ★ ★

ASTRO LENS — Instruction program at meeting, 7:30 p.m., Feb. 4, Photo Arts Bldg., Balboa Park. Bring camera, meter and two photos.

ASTRO NOTES—Choral group meets and rehearses at 7:30 p.m., Mondays, ARA Clubhouse.

BALLROOM DANCING—Class series now under way. Will close registration in two weeks. Call Wick, ext. 3322, for special information.

BRIDGE—Meetings, play, every Thursday, 7:30 p.m., Barcelona Bridge Club, Fourth and Juniper.

CHECKERS — Employees interested in ARA-sponsored plant tournament contact John Miller, ext. 871.

FREE TICKETS—Tickets for IRC night at Skateland, Front and "G" Sts., 6:30-9:30 p.m., Feb. 5, available at employee services outlets.

GOLF — ARA Sweepstakes at Caliente, Feb. 3-4. Entries accepted through Feb. 2 by Dee, ext. 1111.

GUN CLUB—Small bore rifle shoot, 9:30 a.m., Feb. 4, at Gillespie Field range.

ICE SKATING — Call Dixie, ext. 600, before Feb. 16 for reservations to Big Bear, Feb. 23-25.

PUTTING GREEN — Reopens Feb. 5 on Mondays, Wednesdays, Fridays, 11 a.m.-1:10 p.m.

RADIO CLUB — Meeting 7:30 p.m., tomorrow (Feb. 1), Radio Room, ARA Clubhouse.

RIDING CLUB—Meeting 7:15 p.m., Feb. 12, ARA Clubhouse.

ROCKHOUNDS—Field trip to Yuma Test Station and Imperial Dam area, Feb. 10-11.

SNOW SKIING—Trip to Big Bear, Feb. 10-11. Reservations with Gene Rockafeller, ext. 2868, before Feb. 2. Business meeting 7:30 p.m., Feb. 7, ARA Clubhouse.

Dance Classes Closing Soon

Two more weeks remain in which to enroll in ARA-sponsored ballroom dancing classes being offered at GD/Astronautics. Initial sessions were held this week. No new students will be accepted after the next two sessions.

Beginners meet on Mondays, intermediates on Wednesdays, both in the center section of the ARA Clubhouse. Sessions are from 7:30 to 9:30 p.m. each week and will continue for a 12-week period.

Students will be taught a variety of steps, all designed to teach those dances normally encountered at social events. Professional instructors are retained for the classes.

Cost per student is $9 for the 24 hours of instruction.

No advance registration is necessary. Contact Commissioner Bryan Weickersheimmer, ext. 3322, for specific information.

AWARDS TIME—Winners in Dec. 9 Astronautics Management Club golf tournament held at Bonita Country Club were honored at January meeting. Art King, golf chairman, presented trophies.

Flight Crews Practice 'Jumps' Via Ejection Trainer

Flight crews, inspectors, and maintenance people involved in the B-58 escape capsule program soon will be making familiarization "jumps" from three-feet up in a B-58 escape capsule.

"Ejections" will be made in GD/Fort Worth's new In-Plant Crew Escape Capsule Trainer, now operational in the nuclear manufacturing building.

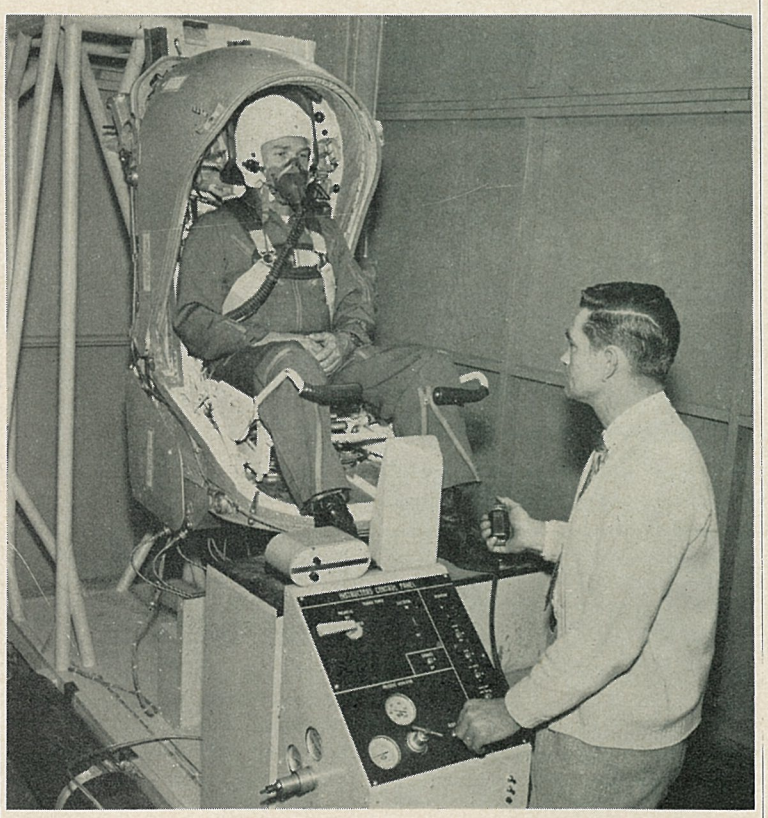
The trainer consists of an operational B-58 escape capsule suspended on a frame of tubular steel. The rig is raised about three feet above floor level to permit easy viewing.

"Since flight safety is involved in preparation and checkout of the B-58 escape capsule, we need this up-to-date device for training and certifying all personnel who'll work with it," said W. D. Halsey, assistant factory manager-flight control systems.

The trainer will also be used to check out new installations on the capsule. It is operated by an instructor, whose control panel is located immediately in front of the capsule. This permits visual contact with all capsule operations.

To begin the encapsulation process, the occupant pulls a pre-ejection handle at his side, effecting a series of pre-positioning movements; an inertial reel tightens the shoulder harness, pulling the occupant back into his seat; leg thrusters automatically pull knees up, restraining legs and feet well behind the capsule door.

"We then close the door manually to make certain it'll clear the occupant," said C. R. Hall, liaison man who will be one of the instructors, along with members of Dept. 3 (educational services).



GET SET!—Jim Lucas of GD/FW flight department gets set in new B-58 escape capsule ejection trainer, preparatory to practice "bail out."

Once clearance is given, the occupant squeezes the ejection trigger, beginning the simulated "bail out."

The capsule's telescoping doors slam down with tremendous force after the occupant is positioned. A whiff of air is circulated through the capsule to simulate pressurization.

Capsule and occupant are then moved up a foot or so to give the trainee a sensation of riding the rails up and into the slipstream. As he enters the "wind blast," the capsule's stabilization booms—which prevent pinwheeling in flight—flare back. Simultaneously, a drogue, or stabilizing parachute, pops out (theoretically in this instance).

Assuming the ejection was at high altitude, the trainer will simulate a free-fall to below 16,000 feet, where the main recovery chute opens and flotation booms extend from four corners of the capsule.

The occupant then "lands," and deplanes with "a pretty good feel for what it's like to actually eject" in a capsule designed to withstand tornadic supersonic slipstreams.

"A number of safety features are built into the trainer," said Hall.

A "dead man's switch" will cut off all trainer air pressure supply immediately and exhaust all pressure within the capsule at any point during the encapsulation process.

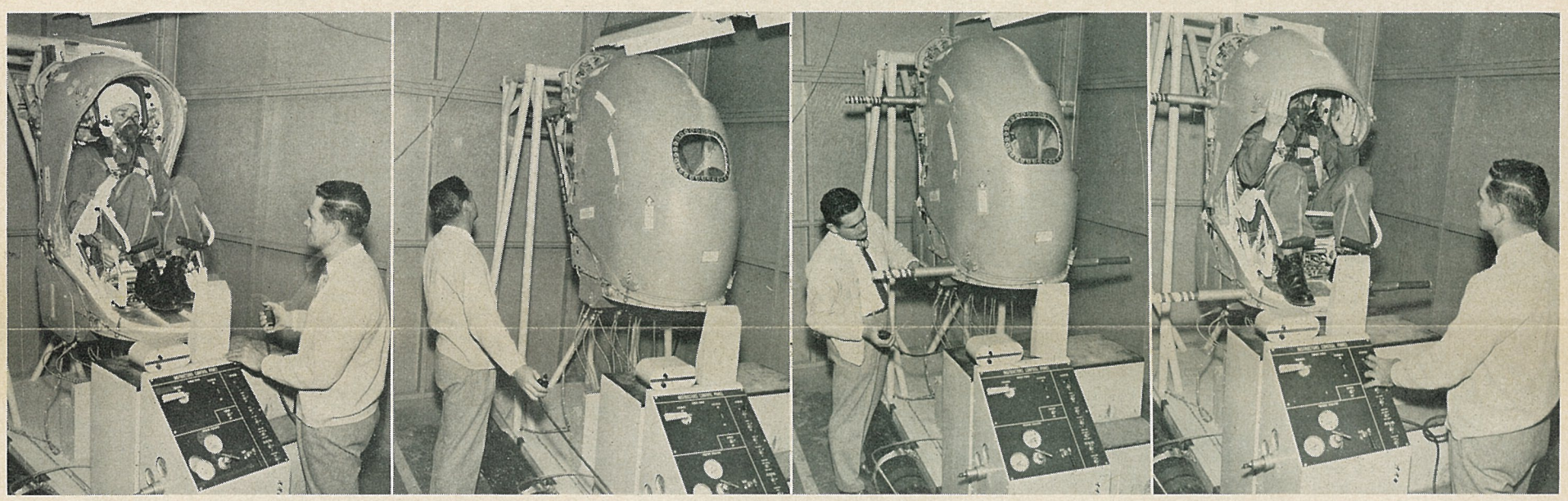
"Another is a solenoid valve in the door thruster which permits the doors to be checked manually for clearance before air pressure slams them down."

Another safety feature is the "open mike" within the capsule which enables the occupant to speak to the instructor at any time.

Detail parts, holding frame and other components, were made by Dept. 65. Assembly of subcomponents and installation was performed by Dept. 79.

A similar escape capsule Mobile Trainer Unit is being built for installation at Carswell AFB, where it will be used to train combat crewmen of 43rd Bomb Wing in ejection techniques.

Complete support indoctrination and certification of GD/Fort Worth personnel will be in areas of: environment; location function and operation; recognition and identification; theory of operation; inspection servicing and safety procedures; component removal and installation; and component adjustments and overhaul.



SEQUENCE—Instructor C. R. Hall of GD/FW is at controls of new B-58 capsule ejection trainer for B-58 crew men at Fort Worth. He spells out directions to Jim Lucas, then pushes button for action. Device pre-positions Lucas for ejection, reels tighten chest harness and restrainers pull legs up, feet back. Door then closes and capsule takes short ride up rails. At far right Lucas signals "okay" after "jump." Trainer simulates ejection just three feet above floor.

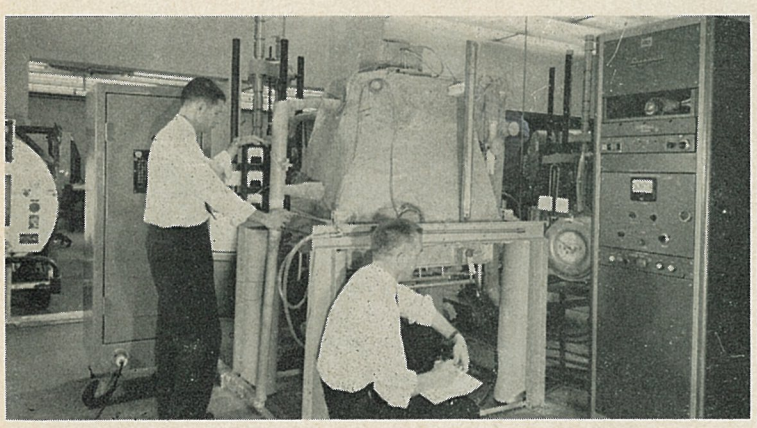
Space Materials Test Apparatus 'Freezes and Fries' at Same Time

Apparatus with capabilities unequaled in aerospace testing has passed first trials in General Dynamics laboratories.

The "thermal conductivity" equipment for testing insulation systems was designed and constructed by Dynamics research engineers. So far as is known, it is the only one of its kind in the country. Its task is to produce extremely high and low temperatures at the same time, subjecting various materials to the same conditions they would meet as outer skins for space vehicles.

A three-foot square mound of grey plastic foam, resembling a solid block of concrete, holds metering and guard tanks, crux of the entire system. Specimens of materials developed for space vehicle construction are attached at the bottom. There they are punished by cold temperatures as low as minus 320 degrees Fahrenheit on one side. At the same time they are roasted by hot blasts up to 1,800 degrees F. on the other.

Liquid nitrogen flowing through the inner aluminum metering tank, protected by layers of insulation and a guard tank, produces the cold which a space vehicle would endure from internal fuel tanks. A battery of heat lamps underneath the specimen produce the extremely high temperatures such as encountered speeding through the atmosphere at approximately Mach 7.5 speeds at 75,000 feet, and trajectory to or from orbit.



PUNISHMENT—John Steibel, at left, and Bill Gosch record temperatures, up to 1,800 degrees F. on one side, down to minus 320 degrees F. on other, inflicted by new testing apparatus on materials destined for use in space vehicles.

A large vacuum pump on the specimen can duplicate a range of pressures from those of the atmosphere around the earth to those 60-70 miles above the earth's surface.

John S. Steibel, now of GD/Astro Dept. 592-1, research engineer in charge of the project, said that possibility of such a test facility was conceived over a year ago by GD/Convair materials and processes laboratory engineers.

Ultra-light insulation systems, weighing not more than a pound per square foot, proposed for actual use in space vehicle construction, will be tested. Among such materials are microquartz fiber; a laminated material of alternating layers of gold or platinum and felt-like paper; and rigid board-like material made of pressed ceramic powders.

Future plans call for refinement of the testing apparatus for use of liquid hydrogen which can bring the temperature range down to minus 423 degrees F., and greater evacuation to reach pressures simulating altitudes of 100 miles and over.

Among those most involved in design of the apparatus and in the test program were Henry Jones of GD/Astro Dept. 592-1; W. D. Gosch, senior thermodynamics engineer, who was consulted on thermodynamics aspect of the structure. Ron Lang, predesign engineer, and Al Eulberg, project engineer for space plane studies, played a large part in initiating the project.

OH BOY!—Tasting fresh oranges off tree for first time are Swissair captains Hans Jaeckle, Willi Stierli, Niklaus Wiedmer, Robert Staubli, Hugo Muser. Swissair pilots sampled Southern California fruit during visit to GD/Convair pilot's home while in San Diego to pick up 990s.

Oranges Picked in Southern California Arrive Next Day in Zurich by Jet 990

A box of oranges picked in San Diego arrived in Zurich, Switzerland, less than 16 hours later aboard Swissair's first 990 to leave the General Dynamics/Convair plant this month.

Swissair's first 990 Coronado, international version, left the San Diego flight line Jan. 18 at 11:30 a.m. (PST). It touched down at New York four hours and 26 minutes later and stayed there four hours before taking off on its transatlantic flight. It arrived in Zurich six hours, 46 minutes later on a non-stop flight.

The Southern California oranges were provided by GD/Convair pilot Sherm Johnson. Captains of both the Jan. 18 and second 990 delivery flight the following Saturday were entertained at Johnson's Spring Valley home while in San Diego.

Swissair Captains Robert Staubli and Niklaus Wiedmer took out the first 990; ferrying the second were Captains Hugo Muser, Hans Jaeckle, Willi Stierli.

GENERAL DYNAMICS

NEWS

ASTRONAUTICS EDITION

Vol. 15, No. 4 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, February 14, 1962

Improvisers

Crews Squeeze Into Fuel Tank For Fast Pre-Launch Atlas Fix

CAPE CANAVERAL — Working against time and in the shadow of publicity focused on a Mercury project, a picked team of missile technicians here recently performed one of the most unusual missile "fix" operations ever attempted.

Their work paved the way for Ranger III, a space craft launched by Atlas 121-D and an Agena B stage.

Primarily involved were General Dynamics/Astronautics employees. Air Force and National Aeronautics and Space Administration (NASA) personnel assisted as needed.

During routine pre-launch operations a loss in fuel level occurred. Fuel had leaked through a rupture in a thin aluminum lining used to hold plastic foam insulating material against the intermediate bulkhead. (Later models of the Atlas were built without this insulation material and lining.) With engine vibration there was a possibility of the lining giving way, contaminating the fuel tank.

Since Ranger III had to be launched within a five-day period to succeed, timing was extremely close.

One solution was to remove the stage and the Atlas from the launch pad, returning the latter to the hangar for repairs. However, this would delay the shoot well beyond the five-day limitation.

Roger Lynch, Complex 12 test conductor, called together engineering and shop forces and outlined the problem. From an idea to remove the sustainer engine before the missile left the pad grew another plan: perhaps crews could reach the damaged area by entering the RP-1 fuel tank from the base of the missile. Removal of the lining and insulating material would not affect the mis-

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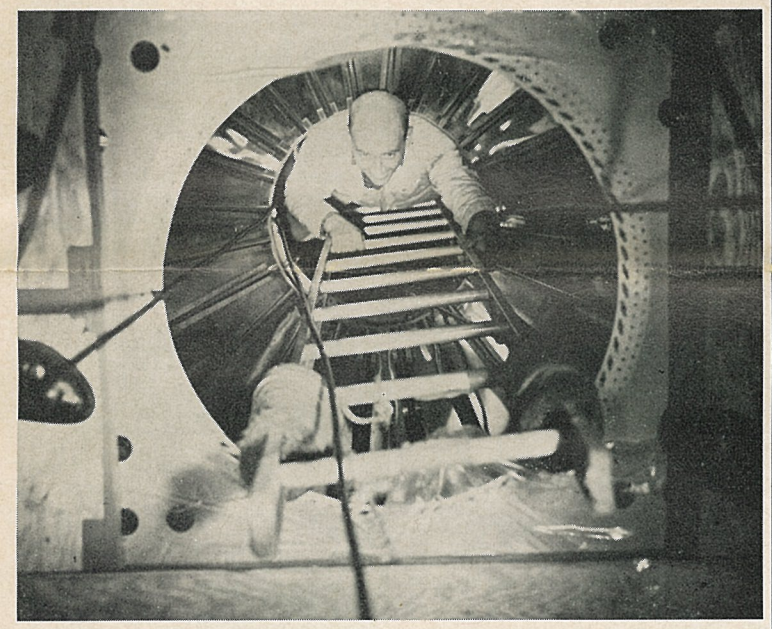
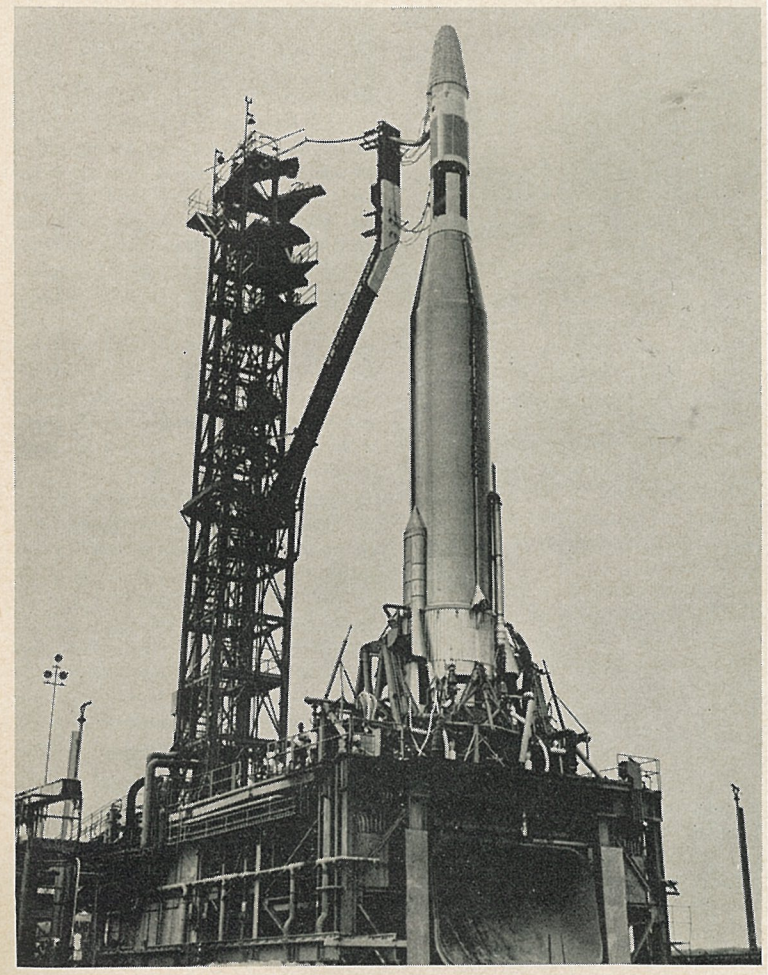
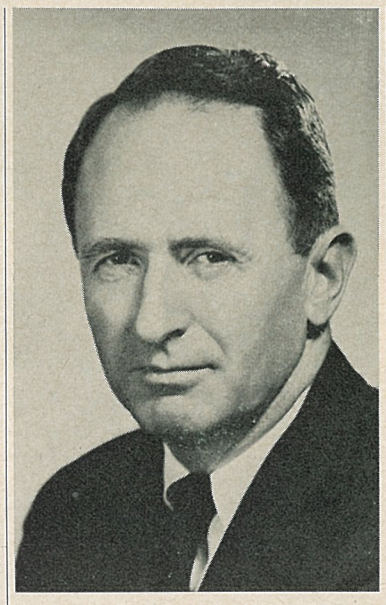


TIGHT SQUEEZE—Ford Hacker, propulsion technician for GD/Astro at Cape Canaveral, shows what tight fit was involved in entering Atlas missile tank for repairs. Scaffold erected inside missile tank was used to repair Atlas 121-D for Ranger III launch. Top of ladder here is actually inside RP-1 tank.



READY TO SHOOT—In above photo, Atlas stands on launch pad, Cape Canaveral, carrying Agena-B booster and Ranger spacecraft.



NEW PRESIDENT — Roger Lewis, formerly of Pan American World Airways, will take over as president of General Dynamics Corporation in April, when Earl D. Johnson becomes Chairman of the Board.

'Fairest' Girls Of GD/Astro Seeking Title

Approximately 100 of Astronautics' "fairest" moved through preliminary judging this week on the road to selection of a "Miss or Mrs. ARA" to reign for the coming year over recreational events.

Members of AR-Aiders (newly titled ARA "booster" group) were introduced to the candidates during preliminary judging in ARA Clubhouse. Following judging, candidates and AR-Aiders were entertained at dinner.

Voting at that time narrowed the field to 15 "finalists" who will serve as models in the annual ARA Fashion Show March 28 in the Bldg. 2 lobby.

A panel of judges from organizations outside GD/Astronautics will select the Queen at that time, and she will receive her crown as a climax to the event.

All candidates for the title were employees of Astronautics, the Air Force Plant Representative's Office, or associate or subcontractors in the San Diego area.

Each was required to have a "sponsor" who submitted her nomination through the AR-Aider in their work area.

In selection of the finalists, as in choosing a Queen, judges based their decision on the basis of personality, poise and personal charm, with sheer "glamour" excluded as a deciding factor.

All judging is conducted with candidates wearing street clothes.

Following selection of the Queen at the Fashion Show, prizes will be awarded the Queen, her court, and the Queen's sponsor.

Management Club To Meet Tonight

John Diebold, president of an eastern management consultant firm, will address General Dynamics/Astronautics Management Club meeting tonight (Feb. 14) in the Caribbean Room, El Cortez Hotel.

A social hour begins at 5:30 p.m., with dinner at 6:30.

Diebold will speak on "Management and Automation." The program is sponsored by data processing (Dept. 101).

Some tickets still are available from Management Club ticket outlets at Astro facilities.

New Life Science Annex Being Built For Space Studies

A complete center for testing human reactions to space vehicle environments will begin operation at General Dynamics/Astronautics later this year.

Now under construction, the new life sciences annex is a 6,000-sq.-ft. addition to the southeastern wing of Bldg. 4, formerly occupied by educational services.

The company-funded, $150,000 structure was designed by the firm of Ruskin and Antelline to specifications of GD/Astronautics plant engineering (Dept. 250).

The 110-by-55-foot addition will include a 40-by-70-foot high bay area to house space vehicles used in life sciences research. This enclosed high bay will be located at the extreme eastern end of the windowless annex, and will be similar to the open bay housing GD/Astro's huge environmental test chamber in adjacent Bldg. 28.

Space vehicles will be moved into the high bay area over a ramp through a 25-foot door at the building's east end, or lifted in by crane through a 25-by-25-foot hatch in the roof.

Removal of the hatch cover will also permit installation of a vehicle taller than the building's 28-foot height, with protruding portions enclosed, if necessary, in a temporary cupola.

In the air-conditioned low bay portion of the annex are a complete clinical laboratory and treatment center, and three psychological testing cubicles where subjects will be examined after spending periods in "outer space."

Psychological testing cubicles will be equipped with windows of one-way glass so subjects may be observed without outside distraction.

The low bay area also includes

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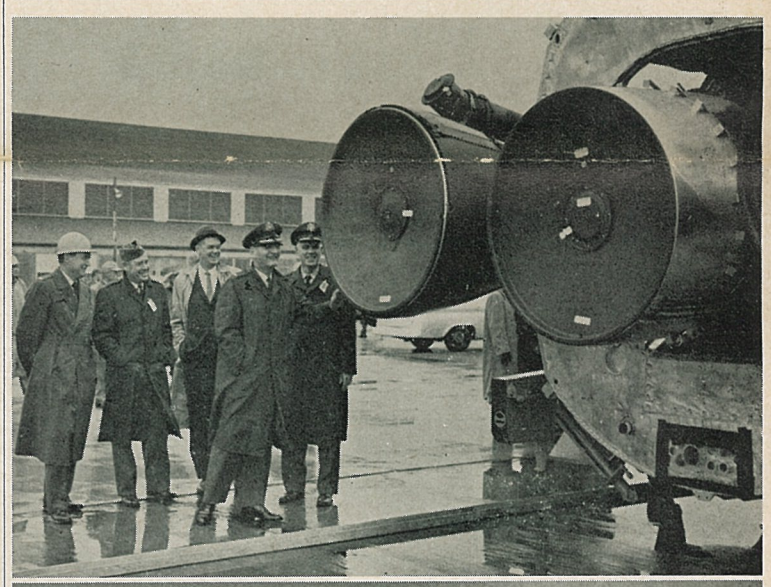

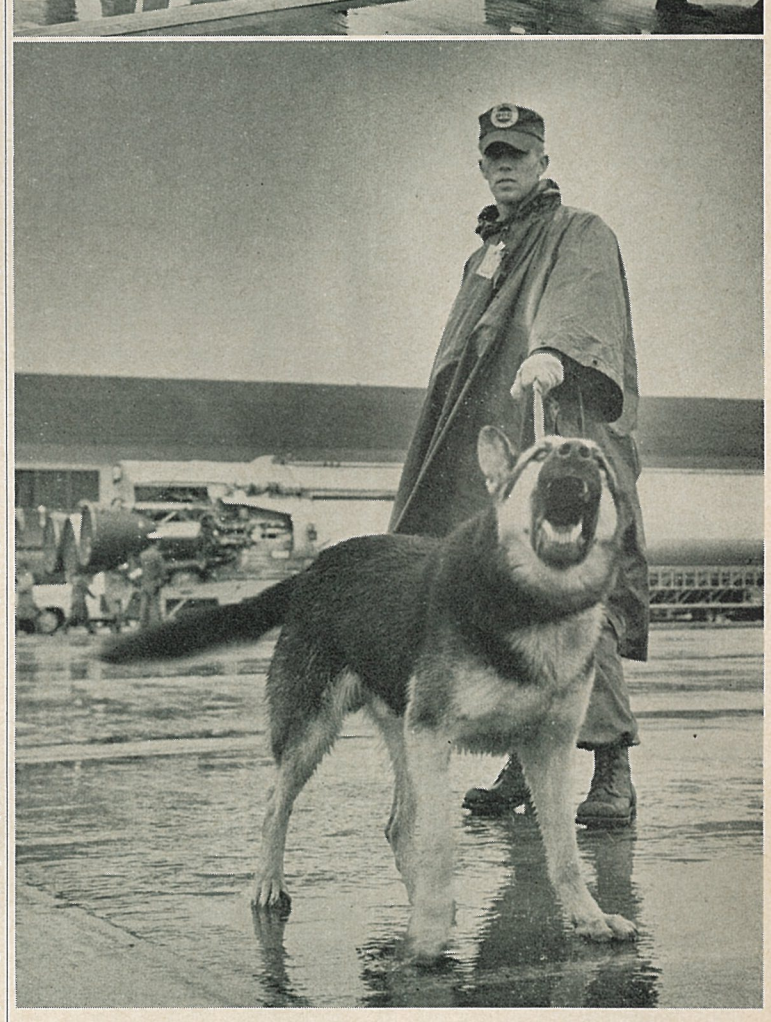

ARRIVAL—First Atlas missile to arrive at Walker AFB was greeted by (top photo) Lt. Col. C. A. Martin, AMA Detachment 16, Col. R. I. Barrowclough, SATAF commander, M. R. Ubben, GD/Astro operations manager, Lt. Col. C. W. Henkle, deputy commander, 579th SMS (SAC), and Col. R. D. O'Connor, commander, 6th Combat Support Group. In lower photo, "Timber," 92-lb. guard dog and handler, A/2 R. H. Smith, kept spectators at safe distance!

Log Book Entries

Promotions

MAIN PLANT

Promotions to or within supervision effective Jan. 29.

Dept. 105-0, Advanced Product Planning: To manager of advanced products, F. P. Stoklas.

Dept. 110-0, Contracts: To clerical asst. supervisor, Marie R. Brock.

Dept. 154-2, Resources Planning and Control: To facilities requirements asst. supervisor, L. A. Denoyer.

Dept. 175-0, PACE Services: To PACE program supervisor, R. S. Van Doren.

Dept. 322-2, Support Publications: To support publications supervisor, H. L. Harper.

Dept. 324-1, Field and Service Engineering: To field engineering supervisor, M. A. Hein.

Dept. 330-0, Support Logistics: To chief of support supply, L. E. Buck.

Dept. 335, Service Parts: To support logistics general supervisor, J. F. Moore. To support logistics supervisor, A. E. Ross.

Dept. 337-3, Support Documentation: To logistics data asst. supervisor, J. W. Brown Jr., W. J. Gilmore Jr.

Dept. 343, Support Manufacturing Control: To support tooling supervisor, R. T. Mulroy. To support tooling asst. supervisor, D. E. Mansfield. To GFE supervisor, E. R. Peters Jr., C. W. Washam.

Dept. 350-3, Support Field Operations: To support calibration supervisor, D. I. Harrison.

Dept. 510, Engineering Management: To asst. project engineer, A. E. Berndes Jr., R. W. Eichmann, J. E. Scott.

Dept. 521-3, Engineering Administration: To asst. group engineer, T. C. Bernard. To facilities record and control asst. supervisor, J. M. Farnsworth.

Dept. 773-0, Processing: To foreman, H. C. Allison.

ALTUS AFB

Dept. 617, GD/Astronautics Operations: To asst. foreman, E. E. Jury, B. D. Parker.

DYESS AFB

Dept. 618, GD/Astronautics Operations: To production control foreman-base, D. Green. To launch complex asst. supervisor, J. W. Magnuson, W. J. Butts, F. A. Rowland. To asst. foreman, K. E. Cater, J. L. Gentry, J. A. Millard, M. Roller.

LINCOLN AFB

Dept. 616, GD/Astronautics Operations: To inspection asst. supervisor, J. T. Frederick, R. B. Hollingsworth. To asst. foreman, P. M. Rutherford. To launch control asst. supervisor, J. C. Baze.

PLATTSBURGH AFB

Dept. 620, GD/Astronautics Operations: To launch complex supervisor, B. F. Murphy. To launch complex asst. supervisor, R. R. Rote. To asst. foreman, A. E. Leonard. To production control asst. foreman, E. J. Cruz.

SCHILLING AFB

Dept. 615, GD/Astronautics Operations: To task control supervisor-base, B. C. Poole. To launch complex asst. supervisor, J. L. Kizziar Jr., R. C. Oakley. To asst. foreman, E. E. Kirtley.

WALKER AFB

Dept. 619, GD/Astronautics Operations: To launch complex supervisor, W. S. Wilson. To production control asst. foreman, M. J. Hund. To asst. foreman, H. A. Lovelady, H. L. Shaulis.

Service Emblems

MAIN PLANT

Service emblems due during the period Feb. 1 through Feb. 15.

Twenty-year: Dept. 193-1, J. A. Sanderson; Dept. 230-0, W. M. Becker; Dept. 250, William Goetz, Arthur Johnson; Dept. 321-5, V. E. Boyer; Dept. 453-0, C. R. Clark; Dept. 535-0, D. M. Moore; Dept. 551-2, C. K. Stroburg; Dept. 771-0, R. A. Deutschman; Dept. 783-0, H. D. Brown.

Fifteen-year: Dept. 141-0, H. L. Anderson; Dept. 220-4, J. J. Lauber Jr.; Dept. 343-1, Juanita B. Hughes; Dept. 344-1, R. E. Lopez; Dept. 402-3, E. J. Rasp; Dept. 545-1, R. J. Frindt; Dept. 547-4, L. B. Linn; Dept. 833-0, F. J. Parker.

Ten-Year: Dept. 143-1, J. T. Hamilton; Dept. 154-1, W. L. Timm; Dept. 193-3, Mary H. Paul; Dept. 194-0, Darlene C. Smith; Dept. 220-2, Ethel H. White; Dept. 250, B. L. Forrester, Joyce B. Lund; Dept. 351-5, I. H. Baughman, C. M. Patterson.

Dept. 452-0, Morris Jordan; Dept. 539-9, L. M. Kelly; Dept. 545-6, H. W. Novak; Dept. 564-3, W. M. Thomas Jr.; Dept. 579-5, G. J. Osmundson; Dept. 591-5, C. C. Dragila, L. C. Hisey Jr.; Dept. 597-3, Hillyer Prentice Jr.; Dept. 759-0, Frances S. Ensbury, Eardis L. Green, R. A. Riveroll; Dept. 771-0, K. W. Arms; Dept. 781-0, J. Y. Bessler; Dept. 782-0, J. W. Espinoza.

DYESS AFB

Fifteen-year: Dept. 618-7, J. D. Roberts.

LINCOLN AFB

Fifteen-year: Dept. 616-1, J. W. Marshall.

PLATTSBURGH AFB

Twenty-year: Dept. 620-7, C. O. Hill.
Ten-year: Dept. 620-7, W. H. Brown.

VANDENBERG AFB

Ten-year: Dept. 576, J. F. Goins, W. A. Reinman.

WALKER AFB

Twenty-year: Dept. 619-7, H. F. Kesling.

Births

MAIN PLANT

MOOSHIAN—Daughter, Douglene, 5 lbs., born Jan. 11 to Mr. and Mrs. Karnig Mooshian, Dept. 322-2.

NEMETH—Son, David Earl Jr., 7 lbs., 2 oz., born Jan. 27 to Mr. and Mrs. D. E. Nemeth, Dept. 579-5.

PALLADINO — Daughter, Deborah Kaye, 8 lbs., 8½ oz., born Jan. 21 to Mr. and Mrs. R. A. Palladino, Dept. 220-4.

SILVA—Son, Stanley Joseph Jr., 9 lbs., born Nov. 11 to Mr. and Mrs. S. J. Silva, Dept. 220-4.

WHILE—Son, Terry Lee, 10 lbs., 2 oz., born Jan. 24 to Mr. and Mrs. R. L. While Jr., Dept. 143-3.

SCHILLING AFB

BEGIN—Daughter, Sonja Rene, 6 lbs., 4 oz., born Jan. 7 to Mr. and Mrs. E. Begin, Dept. 333-2.

DIETZ—Daughter, Karolyn Renee, 5 lbs., born Dec. 10 to Mr. and Mrs. J. R. Dietz, Dept. 615-9.

HAYES—Daughter, Sherry Lynn, 8 lbs., 10½ oz., born Dec. 4 to Mr. and Mrs. R. O. Hayes, Dept. 324-3.

JONES — Daughter, Gwen Marie, 7 lbs., 8 oz., born Dec. 19 to Mr. and Mrs. F. E. Jones, Dept. 615-7.

MERMIS—Daughter, Cheyrl Lee, 7 lbs., 15½ oz., born Jan. 21 to Mr. and Mrs. R. R. Mermis, Dept. 615-7.

SCHMANSKE—Son, Paul James, 8 lbs., 12½ oz., born Jan. 6 to Mr. and Mrs. J. A. Schmanske, Dept. 615-9.

SMITH—Daughter, Tammy Jo, 8 lbs., 1 oz., born Jan. 19 to Mr. and Mrs. G. D. Smith, Dept. 615-7.

VANDENBERG AFB

MURRAY—Daughter, Shawn, 6 lbs., 9 oz., born Jan. 30 to Mr. and Mrs. William Murray, Dept. 576.

Personals

My sincere thanks to the GD/Astronautics employees who donated blood in behalf of our son, Douglas Delmar. Your thoughtfulness and life-saving gifts of blood are sincerely appreciated.

Mr. and Mrs. H. G. Bonagura, Dept. 531-3.

* * *

I wish to express my sincere appreciation for the assistance given me by GD/Astronautics Con-Trib-Club following the death of my father, and which enabled me to travel to New York to attend to funeral arrangements. Your kindness will always be remembered.

Josephine Marie Figueroa, Dept. 322-5.

* * *

We wish to thank GD/Astronautics Con-Trib-Club for its assistance when complications arose at the birth of our son, Stanley Jr.

Mr. and Mrs. S. J. Silva, Dept. 220-4.

Deaths

MAIN PLANT

DUNCAN—John R., Dept. 404. Died Jan. 24. Survived by wife, Nona.

JOHNSON—Arthur, Dept. 250-5. Died Feb. 3. Survived by wife, Sarah, and seven children.

MANN—Eleanor W., Dept. 191-0. Died Jan. 28. Survived by sons, Charles and Dennis.

McARTOR—Harold E., Dept. 351-3. Died Jan. 25. Survived by wife, Vivian, and five children.

SCHIMMEL—C. L., Dept. 410-0. Died Jan. 27. Survived by sons, Lester and R. L. Schimmel.

PLATTSBURGH AFB

PAYNE—R. L., Dept. 620-7. Died Jan. 28. Survived by mother, Mrs. E. E. Payne.

New Life Science Annex Being Built

(Continued from Page 1)

showers for the use of test subjects, rest rooms, and a shop equipped for woodworking, chemical and electronic projects. Data collection and reduction centers in the facility will be linked by direct lines to GD/Astro's computer center.

Installation of office partitions for life science groups in the adjoining wing of Bldg. 4 is also included in the construction project.

Project engineer for GD/Astro's plant engineering is Wes Muse, while George Huston is field engineer. Building contractor is the L. J. Nintemen Co.

GOLFERS ELECT OFFICERS AT DINNER

VANDENBERG AFB — Officers for ARA golf club here will be elected at a dinner meeting slated Friday, Feb. 16, at the Santa Maria club. First tournament of the year will be held Feb. 18.

General Dynamics NEWS

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GD/Electronics (San Diego) news contacts: Info. Tech., Helen Wood, CY-8-8331, ext. 15; Milit. Prod., Betty Freeby, CY-8-4641, ext. 1377.

Fort Worth Editorial Offices, Col. 72, Admin. Bldg., GD/Fort Worth, Mail Zone 0-50, P.O. Box 748, Fort Worth 1, Texas. Telephone PErshing 8-7311, ext. 2961. Staff: Dave Lewis, editor; Mary Beck.

Pomona Editorial Offices, Room 106-D, Bldg. 1, GD/Pomona, Mail Zone 3-3, P.O. Box 1011, Pomona, Calif. Telephone NAtional 9-5111, ext. 6226-5279. Staff: James Combs Jr., editor; Carol Colbert. Daingerfield news office, P.O. Box 947, Daingerfield, Texas. Telephone Lone Star, Texas, 2211, ext. 424.

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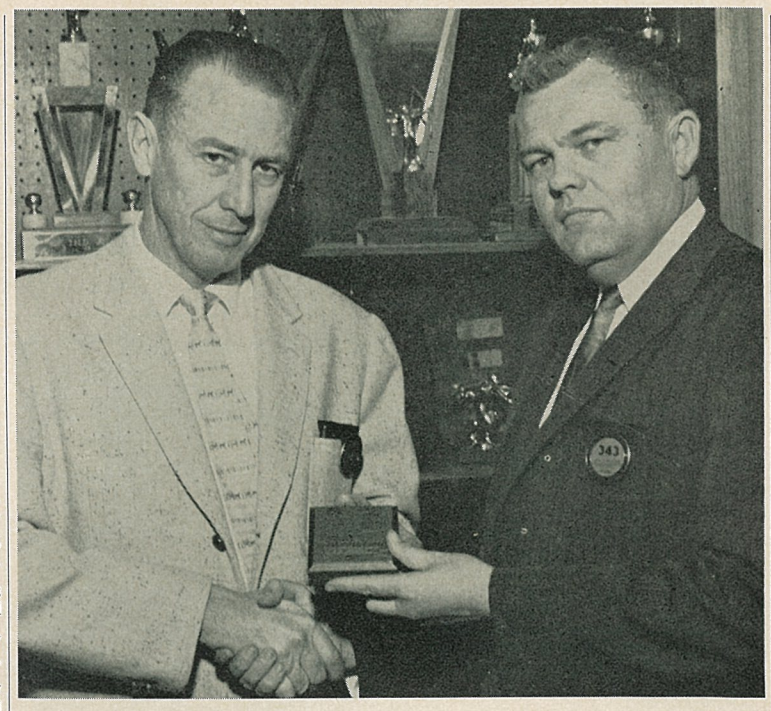


ONE OF TWO—Among 14,000 volunteers who assisted fund raising for United Fund drive, 100 were singled out for special recognition. They received "valuable player award" for efforts. J. R. Mitchell, left, Astro chief of employee services, receives award from D. W. Glasser, also Astro, who served as loan executive during drive. J. R. Dempsey, Astro president, also received similar award.

Improvisers

Crews Squeeze Into Fuel Tank For Fast Pre-Launch Atlas Fix

(Continued from Page 1)

sile's performance.

It was quickly determined that needed parts and equipment could be obtained from Astro's home plant.

Ken Newton, chief test conductor, Lynch, D. B. Suggs, assistant project engineer, and R. H. Goldinger, chief of operations support, presented the plan to NASA and Air Force officials.

They agreed, on condition that all safety rules and regulations would be fully complied with, that the success of the Ranger mission would not be jeopardized in any way; and that no shortcut methods would be used which would sacrifice quality.

Work began at mid-afternoon Friday (Jan. 19). The sustainer engine was removed and all openings sealed off. A platform was built at the base of the missile and a ladder placed up to the thrust cone. Another ladder led upward to the center of the anti-slosh bulkhead. A plywood platform to support twelve 2x4-inch stanchions was added. On top of the stanchions was erected a plywood working deck. Pieces were prefabricated, then bolted together inside.

Complicating the entire operation was the necessity for all men, materials, and scaffolding material to pass through a 24-inch diameter access hole!

Each piece of wooden material used was taped on the sides and the ends covered with foam rubber to prevent slivering. Men entering the tank area wore coveralls, plastic caps and shoe coverings.

Glenn Berg, safety engineer here, made frequent checks to determine that safe working conditions existed within the tank area. Initially, work inside the tank was limited to 20-minute periods. Later, men stayed in the tank for up to one hour each.

Each piece of lining and insulation removed was carefully passed down and out of the tank. Two welders, Bill Strange and Bill Goodwin, worked inside the tank in installing a rerouted pressurization line originally attached to the area removed.

Following repairs, thorough cleaning of the tank interior followed. As the scaffolding came down, the tank was cleansed from the top downward.

As original parts and installations were replaced on the missile, double checks were made on each. By 11 p.m. Monday, testing was under way on the complete system. And by 8 a.m. Tuesday, Atlas 121-D was in the same state of readiness it had been on the previous Thursday when the trouble occurred. Launch followed, within the allocated time schedules, on Friday.

"This was no crash program," Lynch said. "Every operation was pre-planned and carried out. Success came through the high level of technical skill available and the support afforded here and at the main plant."

Lynch and his assistant test conductors, Orin Reed and Jim Vevera, led engineering efforts. Key tasks were filled by such men as Jim Womack, John Tribe, Norman Neiman, C. A. Terhune, Stanley Medanic, Darwin Brown and others. Engineers worked shifts as needed.

Paul Dudney, general foreman, and Foremen Roy Golden and Joe Kadlec led shop efforts. Two selected crews worked 12-hour shifts. They included R. E. Dalton, R. C. Pollard, L. L. McDonald, F. Hacker, D. L. Pritchard, L. N. Thompson, G. R. Brasher, J. A. Church, R. C. Folmar, E. B. Kelley, E. A. Meyer, and W. O. Sloan.

Designed for the job here, the scaffold was fabricated by carpenters Bill Goeth and Larry London.

When the task was completed, crew members dubbed Lynch with a new title: "Doctor of Bulkheadectomy"!

'AR-Aiders' Wins Name Contest

"AR-Aiders" has been selected as a name for the "booster-type" organization within General Dynamics/Astronautics to assist in spreading the word concerning recreational activities.

The name, one of about 50 received, won for E. H. Davies of Dept. 549-5 a $50 merchandise certificate. Names were submitted during a division-wide contest sponsored by ARA. Final selection of the name over others was made by members of the organization.

Second place was taken by A. H. Rambeau of Dept. 614 (Dyess AFB) for the name "Astra-Nouncers." Eleanor Brittain won third with her suggested "Activators." They were awarded $25 and $10 merchandise certificates.

Still under consideration (the object of another contest with similar prizes) is a new design to be used by ARA for letterheads, team jackets, etc. An adaptation of two designs submitted has been worked up and submitted for approval. When approved, awards will be presented. Some 65 designs were submitted.

Astro Names Project Chiefs

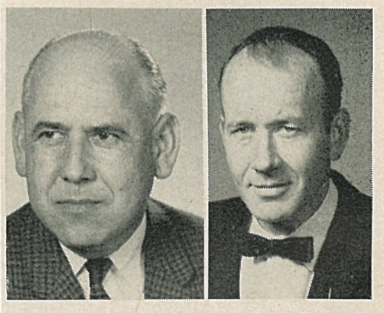
Two new chief project engineers have been named at General Dynamics/Astronautics. They are C. J. Dunn for Atlas weapon systems project management and P. E. Culbertson for Atlas space launch vehicles project management.

Both report to W. W. Withee, vice president-research and engineering.

Dunn has been with GD/Astro since 1957 when he joined the company as a staff specialist. He was named a senior project engineer later that year.

A native of Gary, Ind., Dunn attended Gary College and holds a BS degree from the Aeronautics University (Chicago). He worked as an engineer and sales engineer with Vega Aircraft, Northrop and Bendix Products before joining Astro.

Culbertson, from Colfax, Wash., holds a BS degree from Georgia Tech in aeronautical engineering



C. J. Dunn, left, and P. E. Culbertson, new chief project engineers.

and a MS in the same subject from the University of Michigan.

From 1952 until 1957 Culbertson worked for GD/Convair and the old Convair General Offices, leaving to work for the Bendix Systems Division as head of aeronautics and propulsion. Joining Astro in 1958, he became a project engineer and has been a senior project engineer since 1960.

'Russ' Medlock Goes to Lincoln

L. I. "Russ" Medlock, formerly General Dynamics / Astronautics operations manager at Warren AFB, has been appointed to a similar post at Lincoln AFB, Neb.

L. I. Medlock

Medlock reports to E. J. Huntsman, base activation manager for "E" and "F" bases. He replaces E. B. Newton, reassigned to San Diego.

Medlock took the Warren AFB base activation tasks one year ago, carrying through the successful activation of Warren III sites. Prior to that time he was chief of support quality control for Astro. One of the first men assigned to the Atlas program, Medlock was an inspection general supervisor and then quality control administrator before shifting to product support.

He is a native of Oklahoma and former student at Oklahoma A&M who joined the old Convair organization in 1941.

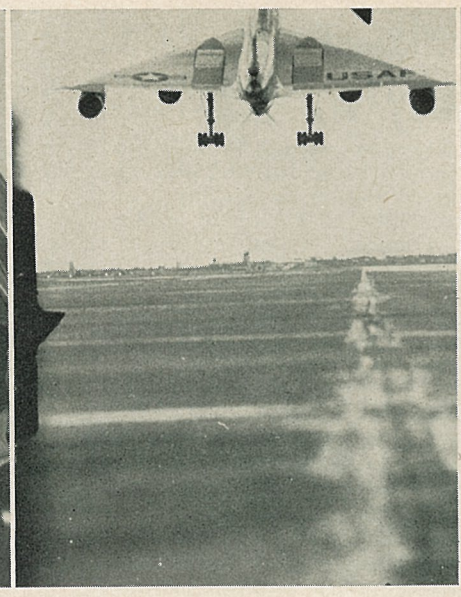
Taking over Medlock's duties at Warren is J. J. Williams who is chief of the site modification team there. Williams reports to W. F. Chana, manager of support field operations. W. D. Taylor has assumed Williams' old post as chief of operations at Warren.

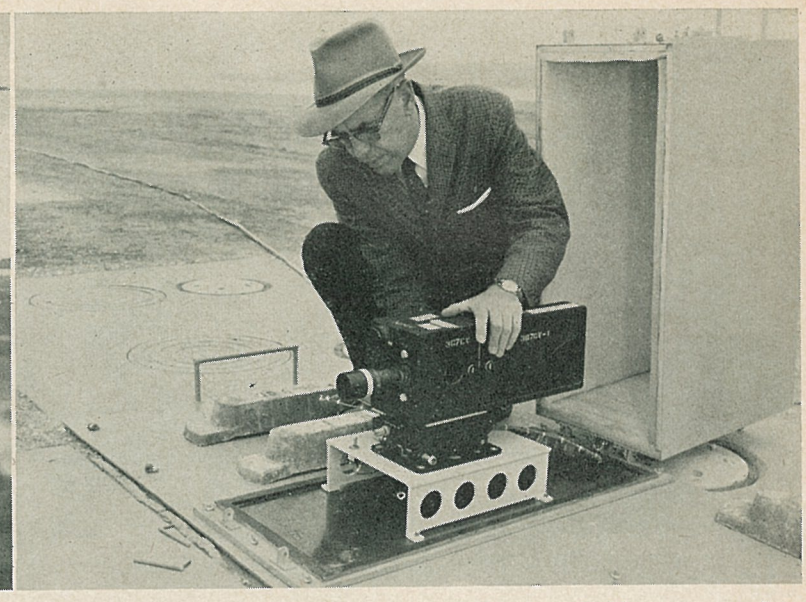
Saturday Salvage Yard Hours Listed

Salvage yards at GD/Convair and GD/Astronautics sites will be open for employee sales on the following Saturday morning schedule:

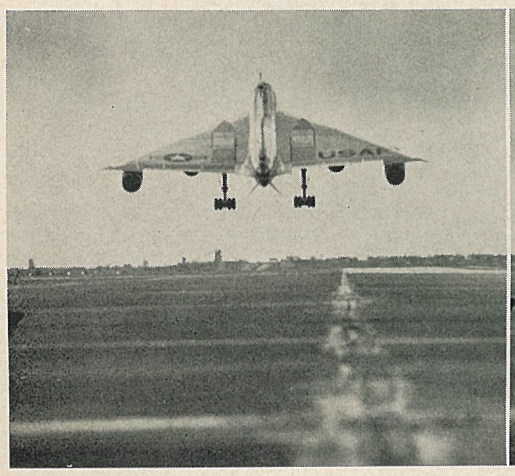
GD/Convair — Feb. 17 and March 3.

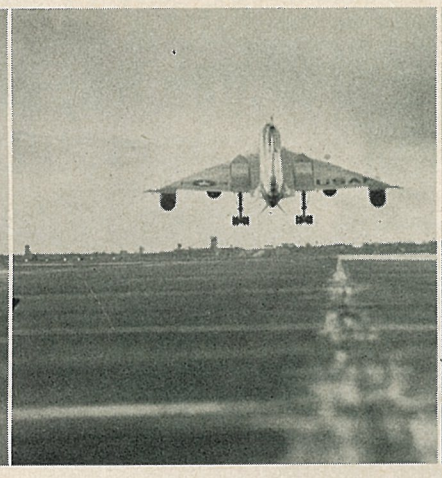
GD/Astro — Feb. 24 and March 10.

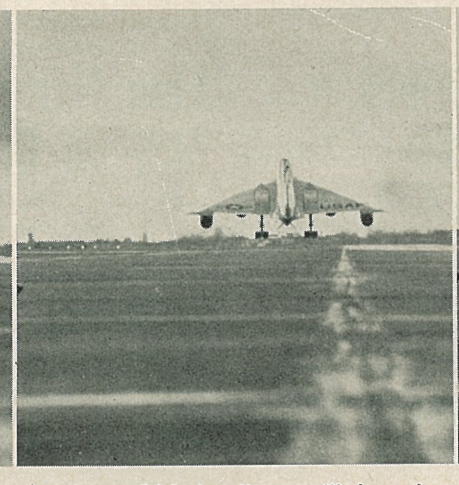


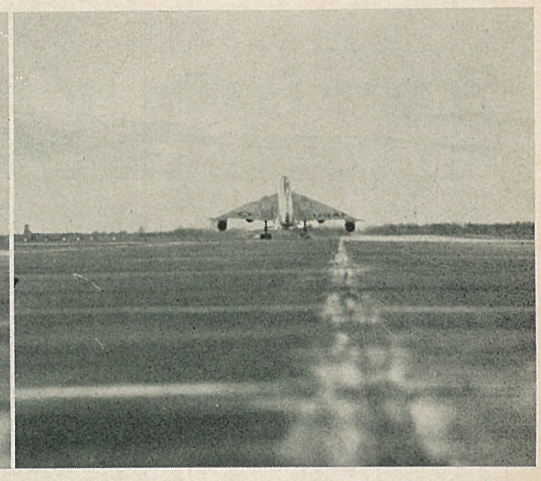


REMOTE "SHOOTING"—At right F. E. Carlile, GD/Fort Worth photo lab assistant supervisor, readies precision 35 mm camera on runway preparatory to recording B-58 landing sequence. At left is Sam White, technician, switching camera into action from mobile control center off runway.









COMING DOWN—Random frames taken from strip (camera shoots 20 frames a second) show B-58 settling in familiar nose-up attitude on Carswell AFB runway. About 300 landings will be photographed for analysis of crosswind effect at Bunker and Carswell AFBs before end of March.

New Explosive Bonding Possibilities Explored

A problem constantly plaguing the space-age engineer—how to join dissimilar metals (titanium to aluminum, etc.)—may be solved through studies conducted recently at General Dynamics/Astronautics.

"We've had considerable success with explosive bonding, recently adding several new 'twists' to techniques using this method," said W. C. Wilson of GD/Astro's applied manufacturing research (Dept. 290-2).

For lap joint (face to face) bonding, the explosive method involves setting a gap between surfaces to be joined, then detonating an explosive charge against one. This brings them together with an angular (shearing) motion, while intense heat results from compression of air within the gap.

The combined heat and shearing impact causes surfaces to "ripple" in a phenomenon known as "surface jetting." A welded (fused) or joined (through mechanical or frictional adhesion) bond results.

Researchers previously believed that an angle of one to 15 degrees was required between surfaces to be joined to obtain the shearing impact.

Wilson simplified this, simply by starting detonation of the explosive charge from the side, rather than at its center. Thus, the detonation wave-front moves the surfaces in the desired shearing motion, and no angle spacing is necessary.

Tests to date have effectively bonded stainless steel to aluminum; aluminum to titanium; and aluminum to itself.

In the aluminum to aluminum bond, pronounced surface jetting resulted and the two samples were actually fused together. Tests of tensile strength indicate the explosively bonded joint to be stronger than the original material.

"Explosive bonding requires less critical surface preparation than conventional welding," Wilson explained. "For simple joints, no special equipment is required.

"Explosive joining can solve a number of design problems," said Wilson. "For units requiring properties of different metals in adjacent areas, designers can now specify exactly the right metal for the right place, and join segments explosively."

This formerly meant using a bulky flange; compromise by specifying easily joined materials; or a "last resort" sacrifice of strength or light weight by using one material for the entire unit.

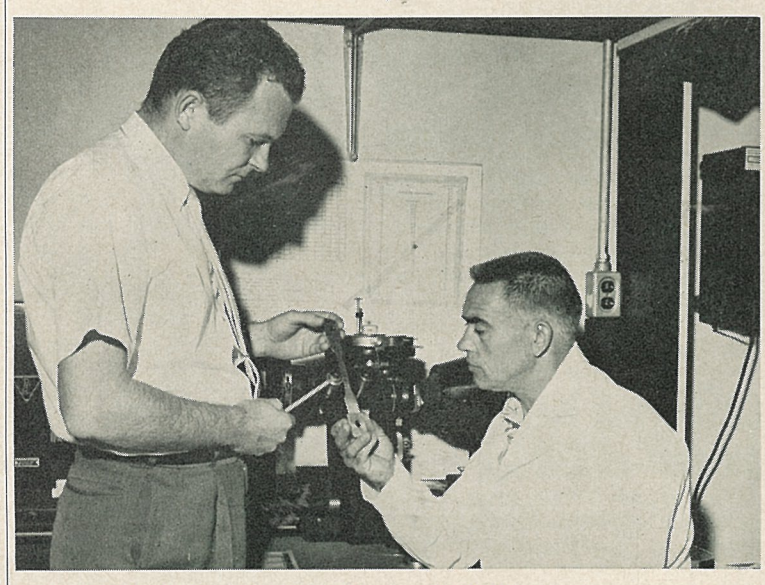
Working with Wilson on the studies is project engineer W. K. Beyer, Dept. 290-2.

Save Material — Don't Throw Your Job Away!

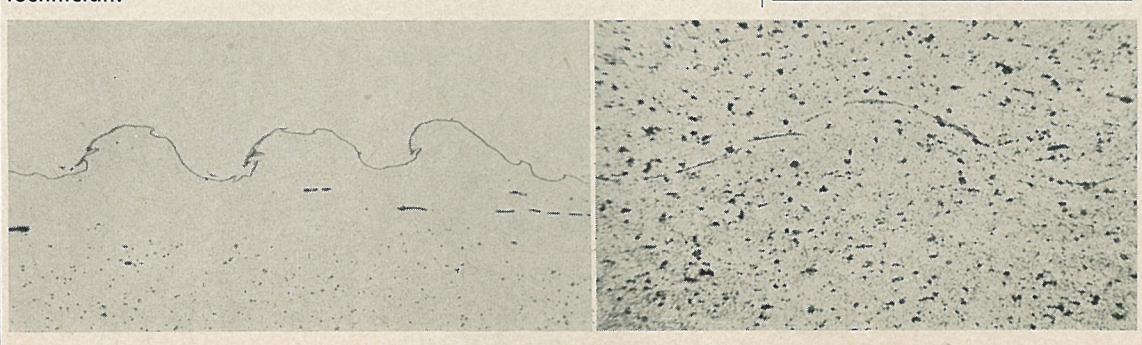
DYNAMIC AMERICA WINS SCHOOL PRAISE

Letters of praise and appreciation came from every high school in the San Diego area this month acknowledging complimentary copies of Dynamic America.

The copies were sent out through GD/Convair employee services. Typical of the letters was one from Norman W. Houser, principal of Mission Bay High. "I have personally gone through this book from cover to cover and without question it is the most impressive book of its kind that I have ever seen. The pictures, the color, the descriptive material has obviously been gathered and presented with great care and skill. We at Mission Bay High are delighted to have this book in our reference library for student use."



NEW METHOD—W. C. Wilson of GD/Astro shows sample of explosively bonded metals to F. F. Jorrey, metallographic lab technician.



A LOOK "INSIDE"—Magnified many, many times, these are photos of cross sections of material that has been joined explosively. At left is bond between K-Monel (white, upper part) and stainless steel. Photo was enlarged by 500 times. At right is bond of two samples of aluminum. Almost complete fusion was achieved. Only a faint line indicates point of joining.

Camera Stationed on Runway Records Crosswind Landings

Precision cameras are recording B-58 landings in a survey of crosswind effects on the Hustler's landing gears.

"We're going to photograph about 300 landings at both Bunker and Carswell before March 31 in an attempt to determine 'average conditions' on landing," said V. L. Salzman, senior flight test engineer assigned to the project.

"Rate at which the plane side slips and sinks—and the yaw or skid angle—will be recorded by the camera, while technicians will note such factors as temperature, wind velocity and direction on each landing."

Filming the landing sequence requires special 35 mm cameras, placed 15 inches above the ground at either end of the runway. Direction of landing determines which camera will be used.

"The camera is operated electrically by a technician in a control truck located near the runway," said F. E. Carlile, photo laboratory assistant supervisor in charge of this phase of the project.

"The technician maintains radio contact with the control tower, setting the camera in motion just as the Hustler wings over the end of the runway. Shooting at about 20 frames a second, the camera records the airplane's position and attitude until it touches down."

Actually, Carlile explained, the cameras are capable of filming as many as 80 still frames a second.

"By using the pre-marked reference points on each negative, we can then use a film viewer to determine the airplane's position relative to the runway, and other pertinent data," said Leonard Henry, senior flight test engineer who helped conceive the project.

A total of 10 to 15 negatives of the nearly 225 taken on the average B-58 landing are used in obtaining data.

Salzman explained that for the purpose of testing, a crosswind is one coming from any direction to the plane other than head-on or tail-on.

"Some wind has existed on virtually every landing we've shot so far," he said, "ranging from very mild to gusts of 20 miles an hour and above.

"Since we can film only daytime landings, and since we're trying to complete our survey by March 31, we're having to film landings at both bases, using tactical Hustlers," Salzman pointed out.

"With any break in the weather at all, I think we'll meet our deadline."

Ehricke to Lecture On Space Solutions

Krafft A. Ehricke, director of advanced studies at General Dynamics/Astronautics, will give one of the 16 lectures in the Cryogenic Technology course offered by the University of California Extension this spring.

Ehricke will speak in San Diego May 14; Fullerton May 15; Los Angeles May 16; Moffett Field May 17. His topic will cover aspects of deep space probes requiring cryogenic engineering solutions.

San Diego coordinator for the lecture series is James F. Watson of GD/Astronautics.

Jet 880s Contribute To New Delta Mark

Delta Air Lines continues in the record-setting business.

For the first time the airline topped the 10-million mark in total revenue passenger miles flown in one day. Including Delta's 34 scheduled Convair 880 flights, the number of passenger miles on Jan. 2 was 10,187,000, reported Joe Dennis, General Dynamics/Convair field service representative based at Atlanta, Ga.

MANY LITTLE PEOPLE—Mr. and Mrs. Phil Ayres and family visit Anton Pearson, wood carver, at his studio near Schilling AFB. Theresa, 9, Christine, 8, Linda, 6, Philip, 5, Edith, 3, and Elaine, 8 months, confront miniature men, Pearson's favorite subject.

Bit of Sweden

GD/Astro Families Far Afield Visit Charming Communities

SCHILLING AFB — About 15 miles from this Kansas base is the rural community of Lindsborg, predominantly Swedish and proud of it!

Among several GD/Astronautics families who now call Lindsborg "home" is that of Phil Ayres, GD/Astro security officer here.

He, his wife and six children enjoy the charm of the community where many "old country" customs and traditions remain part of daily life: "Valcommen" (welcome) signs on shop doors, and a multitude of European arts and crafts still practiced extensively.

One of Lindsborg's best known citizens is Anton Pearson, whose skill at wood carving has gained him world renown. As many other GD/Astro folk have done, the Ayres family called on him recently in his home-studio on Lindsborg's main street.

The artist welcomed his guests and displayed a number of the eight-inch-tall carved figures which are his "trademark." He has been carving them for more than 35 years, and no two are alike.

Pearson has unshakeable pride in Lindsborg. Chuckling, he told his new neighbors a locally popular story of the community's fame abroad.

"A Swedish man on his way for a visit here was astounded by New York's skyscrapers," Pearson winked. "Staring up at them he gasped, 'If this is only New York, what will Lindsborg be like?'"

Ayres and family have a ready answer for that.

"It's great," they agree.

IRE Chapter Elects Three Dynamics Men

General Dynamics men have been named to posts in the San Diego Chapter, Institute of Radio Engineers.

Chairman is Edmond W. Carlson, GD/Astronautics; vice chairman, David Proctor, GD/Electronics; and secretary-treasurer, A. Curtis Greely, GD/Convair.

Serving on the executive committee and as professional group officers are Eric Herz, George J. Mealey, Ernest R. Karcher, Bernard Lander and Charles E. Burgis, all of GD/Astro, and James H. Kluck, GD/Electronics.

National Security Course Offered

A correspondence course, "The Economics of National Security," again is being offered by the Industrial College of the Armed Forces, Fort Lesley J. McNair, Washington, D. C., to selected civilians.

Qualified persons may apply directly to the Commandant, attention Correspondence Course Division. A college education, or equivalent, is desirable. The course, which takes about a year to complete, is an extension of the residence course given to senior military officers and civilian executives of the government.

CAUGHT IN ACT—Little Virginia Harvey is surprised in midst of sudsing down by father, Howard Harvey, GD/Convair Dept. 6, who took top black and white honors with print at Camera Club quarterly judging.

Swissair 990 Busy Training

Swissair's second Convair 990 Coronado, which arrived in Switzerland Jan. 21, is winding up a three-week pilot training stretch at Arlanda, Sweden, this week.

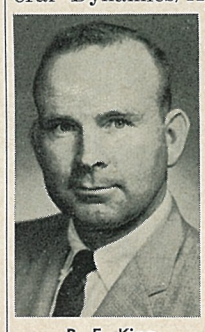
It went to Arlanda Jan. 27 to start crew training the next day, said Frank Laffoon, General Dynamics/Convair field service representative at Zurich.

In the first three days it had averaged 9 hours, 35 minutes a day in the air and made 79 landings. This averaged out one every 22 minutes.

Coincidentally, the same landing average (one in 22 min.) was chalked up during the entire training period with the Convair 880-M at Arlanda last summer. From Aug. 13 through Sept. 5 it flew a total of 282 hours, six minutes, and made 770 landings.

King Named Aide to Biron

Robert E. King, former manager of labor relations for General Dynamics/Astronautics, has been appointed assistant to R. H. Biron, senior vice president-industrial relations of General Dynamics.



R. E. King

King, who will specialize in corporate labor relations matters, is a member of the President's Missile Sites Labor Commission. He has been active in maintaining uninterrupted work at various Atlas off-site bases. Born in Mesa, Ariz., he was educated in Abilene, Tex., and holds a degree from San Diego State College. He joined Convair in 1941, spent a number of years in various factory posts, joining industrial relations in 1950. He was chief of industrial relations at Palmdale before joining Astronautics.

Managers' Seminar To Begin in March

M. S. Lachman, executive development administrator in GD/Convair educational services, is seminar leader for the 11th Seminar for Managers offered through the University of California Extension.

Lectures begin March 7 for ten weeks on Wednesdays, 4:30-8:30 p.m., El Cortez Hotel, San Diego.

Designed for men and women in business and government managerial positions, the seminar lectures deal with modern managerial principles and their relation to current problems. Recognized university authorities and businessmen conduct sessions.

Registration information is available from University Extension office, 1221 Fourth Ave., San Diego.

GD/Convair Men Teach Aircraft at College

Two General Dynamics/Convair men are conducting aircraft courses at San Diego City College this semester.

Don Maxion of customer service is instructing in jet aircraft systems. Course content covers cabin pressurization, aircraft electrical systems, jet aircraft fuel systems, thrust reversing and wing spoilers as used on jet airplanes.

J. B. Van Houten of production flight is teaching flight engineering. The course is designed to prepare students for the FAA flight engineers' written examination.

ASTRO MAN WEDS NEBRASKA GIRL

SCHILLING AFB—Ong, Neb., was scene of a wedding Jan. 13, when Johnny Powell, Dept. 539-2, married the former Shirley Mae Peterson of Shickley, Neb.

TESTING—C. E. Hoffman of Dept. 24-1, left, gets hearing test following recent ear operation. His hearing was normal over-all, "better than normal" in low frequencies. Medical technician is D. T. Maxwell.

GD/FW Man's Hearing Restored With Help of Tantalum Wire

A space-age metal—used sparingly as an alloy in the B-58 Hustler—has helped restore the hearing of C. E. Hoffman, GD/Fort Worth numerical control programmer.

An enlarged stapes in Hoffman's middle ear was recently removed by operation. In its place, a Fort Worth ear specialist placed a one-fifth-inch piece of tantalum wire, containing tissue taken from Hoffman's ear lobe. The wire was clamped on in one place and grafted to the "window" leading to the inner ear.

"I could hear perfectly, it seemed, almost immediately after the operation," said Hoffman, who was under local anesthetic.

"The operation took place in December, and I'll never forget the sheer enjoyment when I went home and heard—I mean really heard for the first time—my recording of 'The Messiah.'"

Another memorable event was his "first" organ concert. "This was quite an experience, because I had been unable to hear well in the lower sound frequencies, even with my hearing aid," he said.

Hoffman said that his hearing problem was congenital. A "slightly impaired" hearing forced him to abandon a planned musical career when he was 21. He eventually suffered about a 60 per cent loss of hearing and has worn an aid for the past 20 years.

The veteran GD/FW employee first read about such an operation—called stapes mobilization—some years ago in a national magazine.

Dynamics to Take Lead In Engineering Week

General Dynamics Corporation again will play a leading role for San Diego observances of National Engineering Week Feb. 18 through Feb. 24.

Six General Dynamics men are honorary directors of the San Diego Committee for National Engineering Week. Among these are Edward J. Williams, corporate senior vice president-manufacturing; J. R. Dempsey, GD/Astronautics president; and J. H. Famme, GD/Convair president. Also from GD/Astronautics are: Mort Rosenbaum, executive vice president; E. D. Bryant, vice president-operations; and K. J. Bossart, technical director.

J. L. Carr of GD/Astro is executive secretary, while E. M. Getzoff of Astro is California State co-chairman. Both serve on the executive committee.

Committee chairmen, all from Astro, include J. Sterrett (finance), T. S. Cope (news media), H. P. Clark (publications) and C. C. Campbell (speakers).

Many other General Dynamics men and women will participate in various ways during the week-long observance this year which stresses "Economic Growth Through Professional Engineering." Twenty-seven engineering and technical societies are sponsoring the affair.

Featured events include the Feb. 22 dedication of a new engineering building at San Diego State College; a "careers conference" for college students to be followed by a celebration dinner with panel speakers at the Hospitality House, Balboa Park, also on Feb. 22.

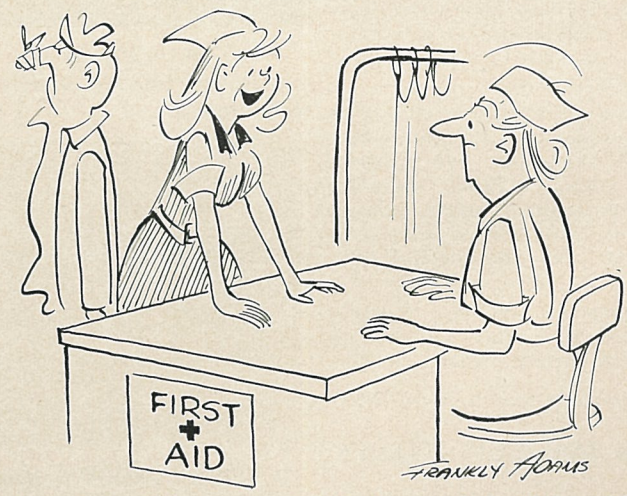
Climax of the affair will be a free exhibit from 10 a.m. to 9 p.m. Feb. 24 and from 1 to 9 p.m. Feb. 25 at the Electric Building, Balboa Park.

Creutz, Fullarton Fill Science Posts

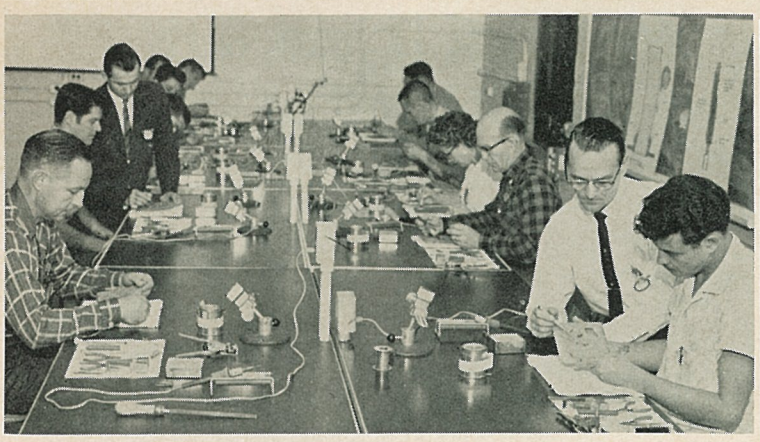
Two General Dynamics Corporation men have been named to key posts by the San Diego Hall of Science and Industry. Three others continue as directors.

Dr. Edward Creutz, vice president-research and development of General Atomic, was named first vice president of the group at a recent meeting. Alan M. Fullarton of GD/Astronautics was elected second vice president.

J. R. Dempsey, president; K. J. Bossart, technical director; and Werner Schmack, Dept. 547-4, all of Astro, continue as directors.



"I don't know if it can be classified as an industrial accident or not . . . He stuck his head into the computing machine, trying to see what happened to his pay check deductions . . ."



NEW METHODS—GD/Astro instructor Hershel Hornsby (standing right) gives C. A. Raley, Dept. 773, pointers in soldering circuit board, while quality assurance representative Rich Kolek (standing left) assists C. N. Paradis, Dept. 782. In left foreground is D. E. Couch, Dept. 783.

Job's 'Life or Death' Importance Emphasized in Reliability Class

"Your job is a matter of life or death," students in General Dynamics / Astronautics "Reliable Electrical Connections" class are told.

This is no idle classroom cliche, for these men and women are engaged in electronic assembly in missile and space vehicle programs where the quality of their workmanship may decide an astronaut's chances for survival.

Some 200 GD/Astro employees —electronic assemblers from production departments, electronic inspection and quality assurance personnel, and supervisors—have attended the special classes since they were begun last year.

Each class includes 40 hours of instruction, meeting eight hours a day, for five days. Both first and second shift classes are conducted at the main plant, and classes at Plant 2 and off-site bases are contemplated.

The course grew from a realization by production departments and the electronic process control section of quality assurance (Dept. 141-2) that assembly techniques acceptable for general application had become obsolete in the "space age."

Old methods of insuring electrical continuity in electronic circuits were confronted with new extremes in vibration and gravity loads.

At the request of J. E. Trader, chief of quality assurance, GD/Astro's educational services section of industrial relations (Dept. 130-3), set about planning a class to meet the challenge.

Hershel Hornsby (Dept. 130-3) and Rich Kolek (Dept. 141-2) completed a National Aeronautics and Space Administration (NASA) course in the subject and Hornsby stayed on to win NASA instructor certification.

He then drew up lesson plans for the GD/Astro course and now teaches the first shift session, while Kolek coordinates this class for quality assurance. Bob Grant (Dept. 130-3) and Jim Webb (Dept. 141-2) conduct second shift classes.

Students attend a series of illustrated lectures, and then receive practical experience in making basic solder connections, harnessing, tying and reworking soldered joints.

On completion, they demonstrate ability in making a variety of connections under the critical eyes of the instructor and quality assurance representative.

"Students—some with 15 to 20 years electronic assembly experience — learn to work to new standards of cleanliness and precision," Hornsby explained. "Qualification for GD / Astronautics' certification is rugged, but graduates are enthusiastic about their increased abilities."

As class graduates return to their jobs, inspectors have noted drops of up to 50 per cent in the number of units rejected because of faulty connections.

"Students completing the course will recertify every six months," Kolek added. "The familiarity of supervision, inspectors, assemblymen and technicians with the same set of high standards provides the combination of good workmanship with quality assurance necessary to produce a dependable product."

INSTANT WATER—Texas "norther" helped create this scene at Dyess AFB which Nelda Larance enhances greatly. Five-gallon water jug (glass) was left out, froze overnight. Glass burst, creating this solid chunk of "bottled water."

20,000 Attend Training in '61 At GD/Convair

Nearly 20,000 persons at General Dynamics/Convair received some type of training under the educational services program during last year.

Total number of classes sponsored, ranging from executive development to induction of new employees, was 1,284 with total attendance of 19,475, H. W. Rubottom, educational services chief, reported in surveying the year's activities.

"During 1961, the education and training schedule at General Dynamics/Convair was a continuing challenge," he commented. "Throughout the year there was great shifting of personnel in many departments creating special needs for emergency training and retraining."

New programs initiated during the year included a re-emphasis on value control and specific courses for General Dynamics/Electronics, including precision soldering techniques, materials handling, paperwork familiarization.

Plans for courses pertaining to the C-141 empennage project were completed during the latter part of the year. Training will be given as needed.

"A most gratifying assignment for our staff in 1961 was a new cooperative certificate program with California Western University to prepare personnel for computer programming, systems and procedures work, and for advancement in the rapidly growing field of business systems management," Rubottom said.

"This is a typical outgrowth of the trend toward automation. The program recently was expanded to provide for graduate degree credit, beginning with the fall semester of 1962."

Management development courses saw 962 taking advantage of supervisory training both in-plant and through the Convair-Cal Western cooperative program.

Orientation was given 4,161 new employees. Under the division's technical program special training courses were given 13,308. Out-plant training reached 27 in engineering professional and technical courses; 904 took manufacturing technical courses; 71, correspondence courses; 40 are in the apprenticeship training program; and two Air Force officers in the Education-with-Industry program.

Value Engineering Seminar Attended

Three General Dynamics/Fort Worth employees appeared on a recent two-day value engineering seminar held by the Institute of Management of SMU, and sponsored by Texas Manufacturers Association.

They were: William G. McMurry, director of value engineering seminars at GD/Fort Worth; C. W. Doyle Jr., value control administrator, spares department; and Richard D. A. Russell, coordinator of in-plant management seminars at GD/Fort Worth.

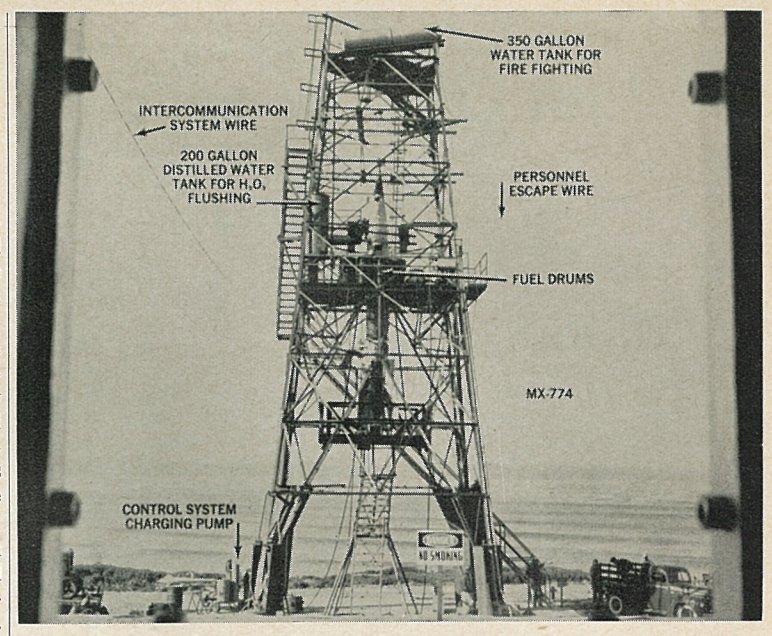
The seminar—believed to be the first of its type sponsored by a leading university — attracted a large crowd representing a cross section of Texas industry.

GD/FW's F. L. Paschal To Head AIH Chapter

F. L. Paschal, health physics administrator at General Dynamics/Fort Worth, is new president-elect of the North Texas Chapter, American Industrial Hygiene Association.

The organization deals with industrial health problems and ways to make employees more comfortable.

Paschal also serves on the technical committee for radiation of the National American Industrial Hygiene Association.



TEST STAND—This was MX-774 missile test stand at Pt. Loma (San Diego) during early years of project that later developed into Atlas.

Carry on to V-2

Ballistic Approach to Problem Adopted by Atlas Pioneers

(This is the 77th installment in a continuing history of General Dynamics products.)

During early development of what became the Atlas missile program, Convair engineers chose the ballistic approach and decided to "start where the Germans left off" (with the V-2 missile) and designed a liquid-propelled rocket vehicle that would improve on V-2 structure and propulsion, and use remote radio guidance for accurate positioning in early stages of flight.

A long-range program was set up, under which Convair would build 10 single-stage test missiles, and as this work progressed, carry forward with the design of a two-stage vehicle. Detailed design work started on some components in June, 1946, and actual fabrication began that fall. (By the summer of 1947, a major portion of the detailed design work also had been finished on a two-stage missile.)

Meanwhile, the post-war cutbacks started in research and development money. Word was received from Wright Field in December, 1946, that funds provided in the one-year contract would have to be stretched into 1948. Albert F. Lombard, an engineering consultant on the project, wrote I. M. Laddon (then Convair executive vice president) in May, 1947, that continuance of the program was in doubt.

"Our project is technically ambitious to a degree that far overshadows the German V-2 performance," he said. "To succeed, I feel that it must receive a backing financially on a scale somewhat of the magnitude of the German activities at Peenemunde."

However, the "Army Air Force has 17 missile projects and only $25 million. Each important one should be getting three or four million right now."

On July 1, 1947, the axe fell. The Air Force, due to budget cuts and its feeling that other ICBM approaches were more realistic, cancelled the Convair program, but authorized continuance of work until remaining funds were exhausted. When the Vultee Field Division was closed that summer, the project was transferred to San Diego. A static test stand was built on Point Loma and the first hot engine run was made there on the No. 1 missile in November. Three missiles were launched in 1948 at White Sands Proving Grounds, N. M.

The missile, called MX-774 after the Air Force project number —was 34 feet long, 30 inches in diameter, used alcohol and liquid oxygen for propulsion, and was designed to climb to an altitude of more than 100 miles, attaining a velocity of Mach 5. This approximated the performance of the 45-foot V-2.

CHIEF TEST PILOT TO TALK ON X-15

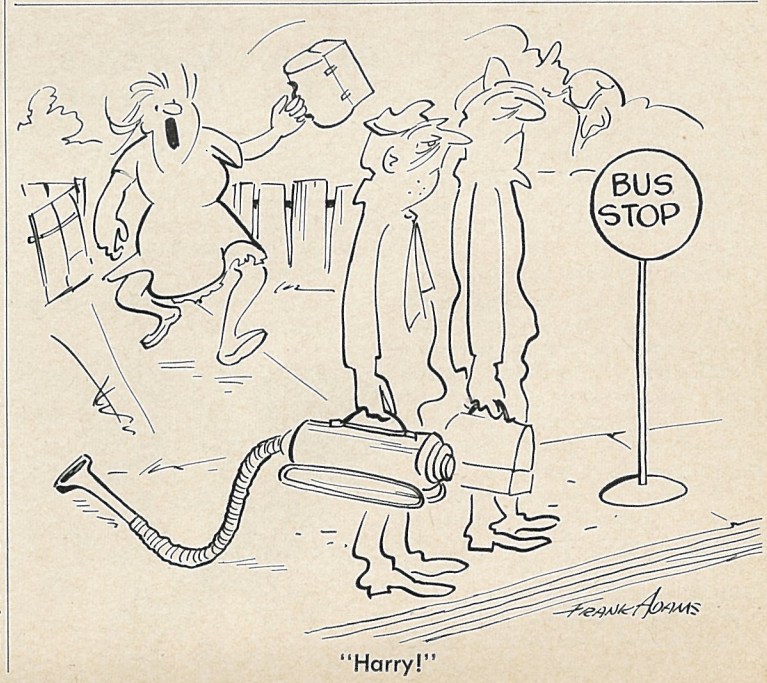
General Dynamics members of the Aerospace Electrical Society and Aerospace-Electronics Division of American Institute of Electrical Engineers at San Diego will hear NASA's chief test pilot at tomorrow's (Feb. 15) meeting.

Joseph Walker will describe and show films of the X-15 rocket plane high speed and altitude tests.

The program will be in Balboa Park's Puppet Theater, 7:30 p.m. Members and guests are invited at no admission charge.

Walker's talk on the X-15 is the first of the "Expanding Horizons" series of lectures on recent developments in the aerospace field planned by the society as a prelude to National Engineers Week, Feb. 19-25, said E. F. Kotnik of GD/Convair, president.

Other details are available from Kotnik, ext. 2432, Plant 1; or Robert Kulick, Astro main plant, ext. 3851.



"Harry!"

Glider Pilots Practice For 16th Championship

At least 30 General Dynamics glider enthusiasts will compete or work behind the scenes of the 16th Annual Pacific Coast Mid-Winter Soaring Championships at Torrey Pines Glider Port Feb. 24-25.

Sponsored jointly by the Associated Glider Clubs of Southern California, with which the CRA Glider Club is affiliated, and the San Diego Junior Chamber of Commerce, the event is one of the largest and most spectacular soaring contests held in the United States.

This year's contest will draw some of the nation's top sailplane pilots, said Gene Whigham, CRA Glider Club commissioner. Around 8,000 spectators gathered to watch 30 sailplanes perform at last year's meet, and this one is expected to create even more interest.

James Spurgeon, GD/Convair engineer, as master of ceremonies, will give spectators an insight into the finer points of contest flying. Meet chairman will be Paul La Frenier of GD/Convair production flight and expert sailplane pilot.

Among General Dynamics pilots expected to compete are Walt Mooney, Duke Stallings, and Carl Stark of GD/Convair; Sterling Starr, DeVaughn North, Al Owens, John Petre, Evan Stover of GD/Astronautics; and Connie Hanitzsch from General Atomic.

Contest events are: altitude (Convair trophy event), distance, bomb drop, aerobatics, and spot landings.

Flying hours will be 10 a.m. through 5 p.m. on Saturday (Feb. 24) and 10 a.m. through 4 p.m. on Sunday. A parking fee of $1 is charged for each car. Parking tickets, which include a chance on two season passes to Charger football games, may be obtained from CRA Glider Club members.

The coming meet will probably be the final Mid-Winter Soaring Championships held in this area, explained Whigham. The glider port site will be eliminated upon construction of Dr. Jonas Salk Research Institute.

Transportation Times Changed

Schedule changes and an additional passenger stop have been announced for General Dynamics/Astronautics transportation routes within the San Diego area.

Trolley service from the main plant to the material building (92) and return has been changed from 15 to 20-minute intervals. The first departs the plant at 7:20 a.m. and the last day shift run is made at 3:20 p.m. Return from the materials building is 10 minutes later. Second shift service remains unchanged.

The addition of a stop at Fordham Bldg. has altered Point Loma service. Vehicles stop at Fordham Bldg. both outbound and inbound from Point Loma. Approximately 25 minutes is required between each stop on the route. From the main plant service starts at 8:30 and 10:15 a.m., 12:45, 2:30 and 3:40 p.m. The last service is a bus, the others station wagons.

Service between Astro and Plant 1, Plant 2 and Sycamore Canyon remains unchanged.

ARA Calendar

(GD/Astronautics Recreation Association has some 45 activities in operation for employees. For information, call ARA headquarters, ext. 1111.)

★ ★ ★

ASTRO LENS—Quarterly contest for black and white prints and color slides, 7:30 p.m., Feb. 18, in Photo Arts Bldg., Balboa Park.

ASTRO MOTORS — Next motorcycle club meeting, 7:30 p.m., Feb. 21 in ARA Clubhouse.

ASTRO NOTES—Choral group meets and rehearses at 7:30 p.m., Mondays, ARA Clubhouse.

BRIDGE—Meetings, play every Thursday, 7:30 p.m., Barcelona Bridge Club, Fourth and Juniper.

DISCOUNT TICKETS — Employee services outlets have tickets to Circle Arts Theatre's "Teahouse of the August Moon" (March 4) at 20 per cent discount.

RADIO CLUB—Meeting 7:30 p.m. tomorrow (Feb. 15), Radio Room, ARA Clubhouse. Program is illustrated talk by Bill Hemingway on amateur radio operations in Chi Chi Jima, Bonin Islands.

ROCKHOUNDS — New class in gem making starting soon. Contact John Stussy, ext. 3201, for information and registration.

SQUARE DANCING — Beginners' classes start Feb. 27 in ARA Clubhouse, with meetings from 8 to 10 p.m., Tuesdays. Register at first sessions.

TENNIS — Entry deadline for novice tournament extended through Friday (Feb. 16). No entry fee. Contact Ben Cendali, Sycamore ext. 58.

WATER SKIING — Season's activities open Feb. 20 with meeting at 7:30 p.m., ARA Clubhouse.

Entry Extended On Net Tourney

Entry deadline for ARA Tennis Club's novice tournament at Morley Field courts Feb. 17, 18, 24 and 25 has been extended through Friday (Feb. 16).

All GD/Convair and Astro tennis fans who have failed to reach the semi-finals of an ARA or CRA singles tournament during the past year are eligible.

ARA Commissioner Ben Cendali will accept late entries telephoned to him at Sycamore ext. 58.

Men's singles, doubles and women's singles events are planned, as well as consolation flight in men's singles play. Trophies will go to winners and runners-up in all flights.

No entry fees will be charged and tennis balls will be provided for tournament play.

Astro Folk to Act In Benefit Show

Several GD/Astronautics folk will take part in Knightside Players' benefit production of "Stairs of Sand," an original three-act play by Dorothe (Mrs. R. A., Dept. 170) Bonsignore.

The show is produced by Al Mix, Dept. 170, and will benefit Big Brothers of San Diego County, Inc. It will be presented March 1-4 and 8-11 at Puppet Theater, Balboa Park.

Tickets (adults, donation $1; high school, 50 cents) are available at all employee services outlets.

Other GD/Astro participants are Millie Rankin, R. A. Bonsignore, Helen Miller, Joe Tricole, Phyllis (Mrs. Emory) Thurston, Jane (Mrs. J. R.) Couchois, John Brigante and his daughter, Vicki.

GD/Astro Man Cited For Rose Parade Job

GD/Astro's Jim Cochran, Dept. 141-3, has been commended by San Diego Junior Chamber of Commerce for his work on San Diego's sweepstakes-winning float in the 1962 Tournament of Roses Parade.

Cochran was chairman of the float committee.

Motorcycle Club To Enter 'Enduro'

A dozen members of ARA Astro Motors motorcycle club will enter the first San Diego County Road Riders' Association competition of the year, Feb. 18.

The event, known as an "Enduro," is a time-distance run, taking riders over a 200-mile course.

Next club business meeting will be held at 7:30 p.m., Feb. 21 in the ARA Clubhouse.

New Beginner Dances Begin

"If you can walk, you can square dance," said ARA Commissioner Marty Stutz in announcing the Astro Nauts new series of beginners' square dance lessons opening Feb. 27.

Classes, open to GD/Astro employees and dependents, will be held from 8 to 10 p.m. each Tuesday, with registration open at sessions held Feb. 27, March 6 and 13.

Sessions are held in the new ARA Clubhouse at a cost of 50 cents per person. Lessons are under direction of veteran instructors Dot and Van Vander Walker.

ARA Astro Nauts open classes to beginners—those who have never danced before—only twice yearly. Basic instruction over a 16 to 20-week period takes students from the simplest of walk-throughs to the most intricate of steps.

Initially, records will be utilized in teaching, with guest callers and live music later in the course. Special parties will be scheduled from time to time.

Fifty Attending Fitness Class

Nearly 50 employees and GD/Astronautics dependents now participate regularly in the ARA-sponsored physical fitness program for women, meeting from 4:30 to 6 p.m., Tuesdays, in ARA Clubhouse.

Instructor John Powell of GD/Astro's AFPR Office, conducts the program to assist ladies in building—or keeping—trim figures. There is no charge.

Powell emphasized that participants can join the group at any time, as the program is continuing.

Each member is given an exercise card on which to chart her improvement. No special equipment is required. In addition to exercises conducted during class sessions, each is asked to "work out" at home, twice each week.

Dressing room facilities are available in the Clubhouse. Additional information can be obtained by calling ARA Headquarters, ext. 1111.

McCurdy, Williams Given New Titles

Executive appointments with the General Dynamics/Astronautics estimating function have been announced by G. M. Robertson, director of management systems.

W. W. McCurdy was named chief of estimating-program administration and R. M. Williams appointed chief of estimating-program development. Williams also serves as acting chief of estimating-program support.

Williams and McCurdy report to L. H. Boggess, manager of estimating.

Divers Charter Boat For Trip to Kelp Bed

Reservations on a first-come, first-served basis are now being accepted for ARA Astro Divers' final boat trip of the current season, Feb. 25.

The chartered boat carrying a maximum of 14 passengers will travel to Bird Rock and the kelp beds.

Reservations are being accepted by Al Haury, ext. 1531, and Bob Kent, ext. 3144.

Quality Control Support Gets New Stress For Off-Site Bases

Additional emphasis on quality control support of off-site bases is reflected in recent realignment of certain responsibilities within General Dynamics / Astronautics' reliability control department.

Changes were announced by D. R. Archibald, manager of quality control.

Involved primarily is the establishment of two major functions to handle base support in lieu of a single organization used previously. Each function is headed by a chief reporting to Archibald.

R. E. Steele, chief of off-site quality control, now directs functional activities involving operational bases. Working with him are chiefs of quality control at each base. Included are G. W. Cooper (Schilling), C. M. Tyner (Lincoln), F. E. Hinton (Altus), J. D. Tate (Dyess), J. W. Dixon (Walker) and R. Sanchez (Plattsburgh).

H. L. Anderson is now engineering test operations quality control chief. Working with him are the chiefs of quality control at test (research and development) bases. Included are R. H. Nicholson (AFMTC), R. E. Harper (Sycamore), R. L. Stanberry (Edwards RS) and J. S. Major (Vandenberg).

"This organizational change will enable us to respond quickly to the day to day support needs involved in base activation," Archibald said. "At the same time we become better equipped to serve our test installations with their increased emphasis on quality and reliability, especially those involving space programs."

Astro Daughter, 14, Breaks 80 During ARA Sweeps at Fletcher

Reservations for the ARA golf sweepstakes to be played at Fletcher Hills, March 3 and 4 will be accepted starting Feb. 10 by Dee at ARA headquarters, ext. 1111.

The February tournament was highlighted by 14-year-old Pat Bourgeois (daughter of Ed, Dept. 280-6), who scored a gross 79, only slightly behind Alex Bezverkov's top 75 gross.

Trailing Bezverkov in the 0-12 handicap bracket were John Olson and Ben Cendali with gross scores of 76 and 77 respectively. Low net scorers in this class were Jim Jones, (65), Ray Mendoza (67) and Kay Stites (68).

Frank Hockenberger's 79 led low gross shooters in the 13-18 handicap group while Gene Velasquez shot 81, and Larry Failor and Bill Couchois tied at 82. Young Pat Bourgeois had a net score of 64, while Carl Labmeier shot 67 and Andy Corrao and Larry Pickett tied with 69s.

Among the 19-and-up handicappers, Chuck Cearley led with 86 gross, with Jack Friedman and Tom McCubbin shooting 90 and 91 respectively. Paul Bender and Ina Pickett tied with 64 for low net honors, and Ralph Campbell scored 69 and Al Lane 70.

Water Skiers to Map Summer Schedule At Feb. 20 Gathering

Astronautics' ARA Water Ski Club will map out plans for an accelerated summer schedule of weekend skiing Feb. 20 when it meets at 7:30 p.m. in the ARA Clubhouse.

Bill Johnson, ARA commissioner, indicated this week that a limited number of members have been skiing throughout the winter months, primarily on a limited basis.

"With summer just ahead we will arrange to have our boats available on Saturday and Sunday for longer periods," Johnson said.

Following a business session in which summer plans will be discussed, those taking part in the meeting will enjoy a color movie, "The Greatest Show on Water." A trophy will be presented to the member with the greatest number of points accumulated in club activities. Door prizes will also be presented.

All potential members are invited, Johnson said.

Self-Improvement Course Scheduled

Because of tremendous response to its present series of self-improvement courses for women, ARA has scheduled an additional beginners' class opening at 7:30 p.m., Feb. 19 in ARA Clubhouse.

Like the advanced and beginning classes now under way, the new series will be taught by Sherry Miller, with two-hour sessions held weekly for nine weeks.

GD/Astro employees and dependents pay only $25 per person for the total 18 hours of instruction, with $10 payable on registration and the balance in $5 installments at the first three class meetings.

Registration and additional information is available by calling Dee, ext. 1111.

Wives Auxiliary Plans Luncheon

ARA Wives' Auxiliary during February will hold a luncheon meeting and a journey to Disneyland.

The luncheon gathering will be at Half-Moon Inn, Shelter Island, Feb. 21. Social hour begins at 11:30 a.m., and luncheon will be served at 12:30.

The annual report of group activities will be presented, and the nominating committee will announce candidates for office in 1962.

Reservations may be arranged through Feb. 19 by calling Mrs. Jack Harper, BR-3-4463.

The Disneyland excursion is set for Feb. 28, with a chartered bus to leave from in front of GD/Astro main lobby at 8 a.m. Cost of transportation is $4, and Magic Kingdom cards available at all employee services outlets permit discount prices at Disneyland.

Mrs. Phillip Silver, BR-7-4508, will handle reservations and provide additional information until Feb. 20.

Lens Club Announces Quarterly Contest

Astro Lens (ARA camera club) will hold its first quarterly competition of 1962 at the next club meeting at 7:30 p.m., Feb. 18 in the Photo Arts Bldg., Balboa Park.

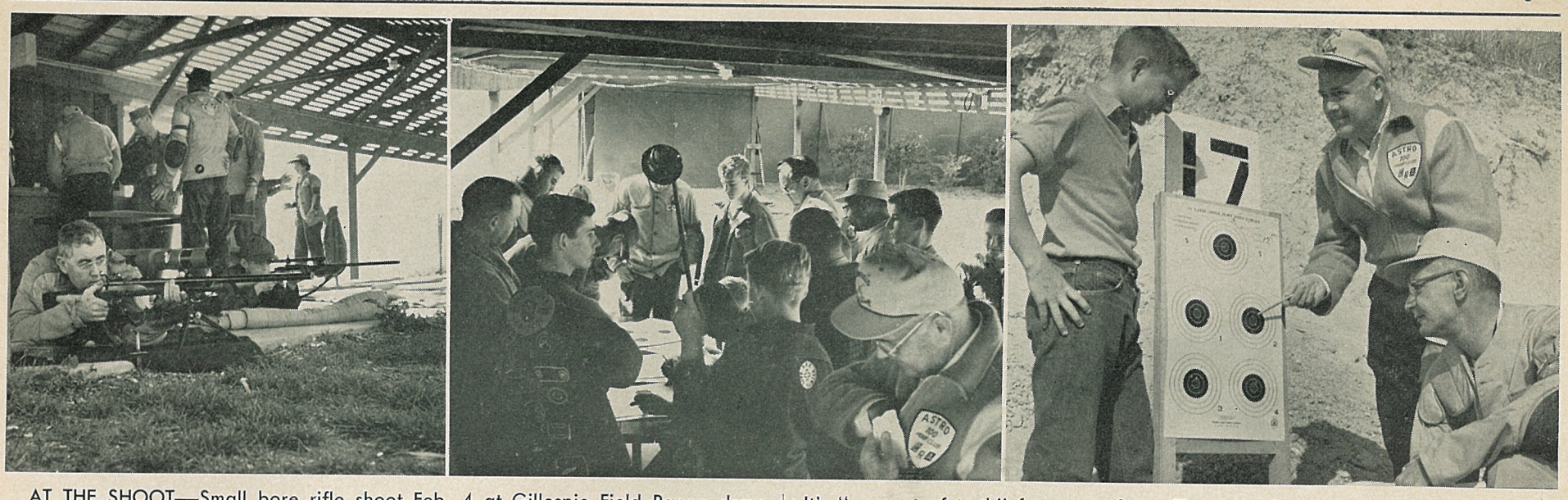
All members have been invited to submit entries of black and white prints or color slides for the event.

Astro Lens officers during 1962 are Phil Raney, Dept. 141-1, president; Gerhard Gross, Dept. 141-4, vice president; and Joan Ainsworth, Dept. 561-3, secretary-treasurer. K. K. Rinker is ARA Commissioner.

Information Sought On Auto Accident

M. J. Batchelder, ext. 1166 at Astronautics, is seeking persons who may have information on an automobile accident in which two Astro employees were injured.

The accident occured about 5:30 p.m. Nov. 22 (day before Thanksgiving) on Murphy Canyon Road. Sought particularly is information concerning a dump truck towing a cement mixing rig that was southbound at the time.



AT THE SHOOT—Small bore rifle shoot Feb. 4 at Gillespie Field Range drew two score shooters. At left Dave Farrelly and son are "on target" while Mrs. Farrelly (background) "talks guns." Center: Shooters hold post mortem. Right: It's "moment of truth" for young Steve Floore as Commissioner Ezra Johnson and Bob Andrews analyze his target pattern. Range now is open Friday as well as Wednesday nights for Gun Club members.

Bunker Prexy Of Pistol Club

New officers for 1962 have been elected by ARA Pistol Club with Ken Bunker president.

Others are A. B. Carlson, vice president; Ralph Sanderlin, range officer; R. C. Knutson, assistant range officer; and Roland Schneider, statistical officer. Bill Geopfarth is ARA commissioner.

Results of recent .22 Police Course matches found Harold Sicard winning master class with 293, trailed by Schneider with 291.

For the third consecutive match, Don Smock edged Mort Williams by a few "Xs" (dead-center bull's-eyes) to break an expert class tie. This round both fired 276, with Smock winning, 8 "Xs" to 4.

Among the sharpshooters, Leo Berger topped Bill Jungk, 262 to 256; and Ralph Jungk and Rod Eschenberg fired 227 and 219 respectively in marksman class.

A .22 Short National match was won by Schneider with 288, trailed by Glen Myers, 278; Knutson, 277; and Geopfarth, 276.

Series of Gem Classes Slated

With two classes under way, ARA Rockhound Club has announced plans for a third series of lessons in gem making and use of lapidary equipment to open in the near future.

Like the classes now in session, the new series will meet weekly for eight weeks in Rockhounds' fully equipped workshop in ARA Clubhouse.

Cost for the series is $4 per person, with meetings scheduled from 7 to 9 p.m., Wednesdays. Instructor will be George Koehler.

Existing classes feature instruction in using the trim saw, grinders, drum and disk sanders and polishing buffs on materials such as obsidian, agate and jasper. Instructor for these classes is John Stussy, ext. 3201, who also handles registration for the new course.

The Rockhound workshop is open to club members experienced in use of the equipment on Tuesdays and Fridays from 7 to 9 p.m.

Events Scheduled For Track Athletes

Hurdlers and pole vaulters at GD/Convair and GD/Astro will have a chance to enter a year-round program set up by the San Diego Track and Field Association.

Both men's and women's teams will be fielded in competition this spring and regular meets, weekly coaching, and practice clinics scheduled.

Anyone who participated in track events in college or elsewhere and would like to get back into condition for informal competition is invited to contact Jack Dolph, coach for the association, P. O. Box 7284, San Diego 7.

Sports & Recreation

BRUSHING UP—Registration has closed for current ballroom dancing series at GD/Astro. Shown are members of one group, with instructor in auditorium of ARA Clubhouse. Beginners dance on Mondays, intermediates on Wednesdays.

Expedition to Big Bear Scheduled Feb. 23 to 25

Ice skaters at GD/Convair and GD/Astro must sign by this Friday (Feb. 16) if they intend to join the annual winter weekend trip to Big Bear Lake next week.

The entire Wawona Lodge and adjacent cabins have been reserved for the weekend of Feb. 23-25, said Gil Crosthwaite, CRA commissioner.

Lodge rooms with private baths are available for groups up to five persons. Housekeeping cabins include double bedroom, sofa bed, and kitchenette. A few larger cabins can be reserved by special arrangement.

Meals will be served in the lodge dining room under direction of Gil Hutter, Prophet Co. cafeteria manager at Astronautics. Breakfast and evening dinner on Saturday and Sunday will be served, but no noontime lunches.

Activities for the weekend, which last year drew over 100 skaters, include plenty of skating, skiing, tobogganing on Saturday and Sunday; dancing and a midnight pizza party in the lodge Saturday night.

Transportation is by private car. Snow is on order, said Crosthwaite, so all automobiles should carry tire chains and flares for emergencies.

The "winter weekend" package, including Friday and Saturday night lodging and three meals, is $11 per person. Reservations will close and no refunds made after the Friday deadline date.

Anyone wishing to join the party may call Convair employee services offices, ext. 1245, between the hours of 11 a.m. and 1 p.m.; 4 to 5:30 p.m. Crosthwaite also will take applications at Iceland during CRA-ARA ice skating session tomorrow night.

Astro winter sportsmen may call Dixie, ext. 600, at Astro main plant.

Archaeologists Vote Officers For 1962

Officers for 1962 were elected at a recent meeting of ARA Archaeological Society.

President Lloyd Collins will direct the group's activities for the year, with Don Crook, vice president; Bernadine Miller, secretary-treasurer; and Randy Miller, field director.

James Old is ARA commissioner.

Friday Nights Added To Gillespie Shoots

Renewed emphasis on small bore rifle shooting attracted 43 shooters—men, women and teenagers—to a recent Sunday morning session of the joint ARA-CRA Gun Club at the group's Gillespie Field range.

Top shooters in .22 firing were G. R. Cherry, R. M. Harrington, Bill Isbell, L. Farrelly, Dave Farrelly, and R. Andrews.

While the riflemen occupied the small bore range, club trap and skeet facilities were utilized by 97 shotgun enthusiasts.

In response to popular demand, Commissioners Ezra Johnson (ARA) and Jack Swank (CRA) have announced that the facilities will be open from 7 to 9:30 p.m. on Fridays, in addition to the usual Wednesday night hours.

As in the past, the range will be manned from 9 a.m. to 1 p.m. Sundays, and hunter safety classes for youngsters will be in session from 10 a.m. until noon, Saturdays. Gun Club business meetings are held at 7 p.m., the second Tuesday of each month in the Gillespie Field Clubhouse.

Club facilities are reached from Highway 80 via Fletcher Parkway to Cuyamaca St., where a large sign marks the entrance. In the area are the clubhouse, caretaker's home, four trap and two skeet ranges, a small bore and pistol range, children's play area, large parking lots and various supporting buildings.

The ARA-CRA club charges no membership dues but range and target fees for rifle and pistol shooters are 25 cents per person, while trap and skeet shooters pay 50 cents.

Members can use a club-owned reloader, or their own equipment.

In addition to practice shooting the club sponsors many special meets each year, including competitive shoots with gun clubs throughout the area.

Both commissioners strongly emphasize shooting as an "all family" activity, and cite a motto which has become part of the club philosophy: "If you hunt with your boy, you'll never have to hunt for him." The safe handling of firearms is stressed in all phases of club activity.

Additional information on Gun Club activities is available from Johnson at GD/Astro ext. 2283, or Swank at GD/Convair ext. 1161, Plant 1.

Circle Arts Ticket Discount Offered

Discount tickets for two upcoming Circle Arts Theatre productions will be made available to GD/Astronautics employees by ARA.

Tickets are now available for the 8:30 p.m. showing of "My Three Angels" starring Walter Slezak, Feb. 18, and sales open Monday (Feb. 19) for "Tea House of the August Moon" which will be staged at 8:30 p.m., March 4.

The ARA discount of 20 per cent permits employees to purchase $3.50 tickets for $2.80, while $2.75 seats cost only $2.20 at all GD/Astro employee services outlets.

SMACK YOUR LIPS! THIS IS LIVING, SON

There were no colonnaded mansions and most of the ladies wore slacks instead of hoop skirts, but GD/Astro's support quality control (Dept. 144-1) captured the "flavor" of the Old South at a department fish-fry recently.

Idea for the party was born when Sol Winner returned from an eastern visit, singing praises of catfish and "hush puppies."

The group resolved to feature this at their department outing, and ordered 50 pounds of fish flown in from St. Louis, Mo. Keith "Tiny" Cole volunteered to prepare the "hush puppies," a deep-fried corn meal and onions specialty.

More than 100 department members and guests, including support center manager W. W. Pierce, and supervisors H. H. Mischler and G. R. Koch, turned out for the event, using picnic facilities in the ARA Recreation Area.

LOTS OF FISH—Fifty pounds is a lot of catfish, as demonstrated by Ken Ciringione, Lee Vierra, Mrs. Betty Liebo and Lee Jensen, who prepared them for recent support quality control fish-fry. —Photo by Sol Winner.

PRESENTATION—Secretary of Labor Arthur J. Goldberg congratulates K. M. Williams of GD/Astro on receiving certificate of merit for efforts at Warren AFB. At left is R. T. Castrey, similarly honored for work at Forbes AFB. At right is Robert E. King, assistant to General Dynamics senior vice president-industrial relations, and a member of the President's Missile Sites Labor Commission.

GD/Astro Men Honored For Labor Relation Job At Two Missile Bases

Two General Dynamics/Astronautics industrial relations men, R. T. Castrey and K. M. Williams, were among a number honored by Secretary of Labor Arthur J. Goldberg last month in recognition of their contribution toward completion of two Atlas complexes ahead of schedule.

They received certificates of merit in a ceremony at Washington, D. C.

Williams was honored for his work at Warren AFB where he served as chief of industrial relations. Castrey's award was for a similar contribution at Forbes AFB. Both were members of the President's Missile Sites Labor Commission, organized to handle labor problems at missile and space construction sites.

Awards were presented by Secretary Goldberg for "the fine record made at the Forbes and Warren bases."

A letter from President Kennedy was read at the ceremony. The President reported that the American people "can also feel secure in the knowledge that today, as a result of cooperation between labor, management and government, every missile site construction project is expected to be completed on time or ahead of schedule."

The President cited work records: at Forbes 217,000 man-days were worked after the President's Missile Sites Labor Commission was established, without a single man-day lost to labor disputes; at Warren, 322,300 man-days were worked, with only 23 man-days lost.

"I am sure the American people join with me in an expression of appreciation to the men you honor today and to the many others who are doing the work on these important installations," the President wrote.

Praising the local Missile Site Labor Relations Committees, Secretary Goldberg said:

"The dedicated men who serve on these committees have a difficult and arduous task of dealing with the day to day problems which inevitably arise in the human relations involved in getting these missile sites built. The record achieved . . . is due in great part to the dedication, ability and efforts of the members of these local committees who have prevented problems from arising, as well as settled many differences that did arise."

The Secretary also congratulated the individual missile site workers for cooperation. "By and large the workers at these vital installations have given their wholehearted support to the no-strike, no-lockout pledge given by union and company leaders in the industry," he added.

In addition to the two GD/Astro men, a number of other management, military and union representatives received similar awards, including the International Association of Machinists and the International Brotherhood of Electrical Workers.

New 'Teaching Machine' Field Offers Sales Potential For Tech Writers

Technical writers in at least two General Dynamics divisions are turning their attention to development of a new capability—programming for teaching machines.

Selected groups from General Dynamics/Convair and General Dynamics/Astronautics are being introduced to the revolutionary training and education concept in a series of corporation-sponsored seminars.

"Skills of our trained technical writers are ideally suited for preparing material for programmed instruction," stressed Howard R. Kennedy, GD/Convair manager of technical publications.

"We are concerned mainly with application of the new programming method—breakdown of material into easy-to-learn steps—to our own products. Information already compiled for our customer training programs can be adapted readily for use in any type of mechanical device.

"We feel that there is considerable sales potential for such material, principally to the military, and intend to explore every possibility for this type of business."

Experts in the field of programmed instruction for teaching machines briefed 32 GD/Convair and GD/Astro men on principles and potentials of programming at the initial training session, "Operation Bootstrap," the first of the year. Dr. Joe Sidowski, San Diego State College psychologist, described adult learning principles as related to automated instruction.

This session was followed by a formal classroom course, Jan. 17-26, conducted by Dr. Robert F. Mager of Varian Associates, Palo Alto engineering firm. Dr. Mager is a recognized authority in the field.

Meanwhile, service engineering writers at GD/Convair are applying the new programming approach to subject material with which they are familiar. Material on such company projects as operation of the supersonic B seat, 990 integrated instrument panel, is being converted into form which could be used in training devices.

GD/Astro technical writers will be applying the new programming method to their own specific projects.

Other General Dynamics divisions are eyeing the field. At GD/Pomona work has been done on development of an audio-visual device and accompanying programming. Electric Boat has designed a device for in-house training and production work.

"There is no limit to the possibilities in this field," said Kennedy. "Schools, industry, military services, and government are becoming more and more interested in mechanical training methods.

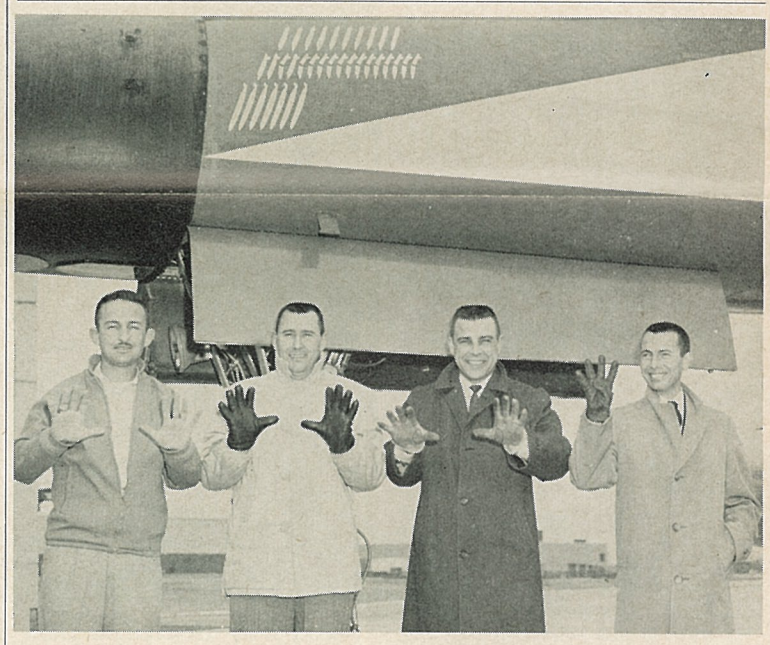
"At least 60 per cent of all textbook or manual material can be programmed. That is, presented in step-by-step sequence to the student. This is called 'frame' writing. Questions and answers can be fed to the learner, one at a time, so that he is led progressively into more and more information. The learner can immediately check and test himself, and set his own pace.

"Programmed material, such as our specialized writers will be preparing, can be used in any device, from the simplest form of a manual with a cardboard shutter pushed down the page by hand to complicated computerized machines."

Surveys show that students can learn more in less time with better understanding by the teaching machine method. Less instructor time is required. Information and instructions can be absorbed in isolated spots—out in the field, in space vehicles.

Areas within the company which can use this type of programming include customer service training and retraining, maintenance and repair, operations; employee training, and conceivably, assembly and production.

The General Dynamics-sponsored program has been developed through cooperative efforts of human factors engineering, customer service, service publications, and educational services.



THIS MANY—It adds up to 34 TCP drops, whether you count insignia or fingers of, from left: Walter E. Alling, flight test control engineer, and Crewmen O. D. Lively, E. E. Guthrie and G. C. Tate. Various designs on fuselage indicate nature of mission.

990 Passenger Flights Begin, Zurich-Tel Aviv

First Convair 990 jetliner passenger flights began last week over European routes.

Swissair, first airline to place the 990 in service, made the initial 990 Coronado flight from Zurich, Switzerland, to Tel Aviv, Israel, last Wednesday (Feb. 7). Return flight was the next day.

The second run was scheduled Zurich to Vienna, Austria.

American Airlines will put the newest commercial jet transport into domestic service in mid-March.

The Convair 990 will make its debut in scheduled U. S. passenger service March 18 on American's New York to Chicago route.

G. Marion Sadler, vice president and general manager of American, said the airline's 990 Astrojets will begin flying two round trips daily between New York International Airport and Chicago's O'Hare Field on that date.

By summer American expects to expand 990 Astrojet service to include Detroit, St. Louis, Newark, Cincinnati, and Dallas. Later in the year other cities will be added, Sadler said.

Between now and start of scheduled service next month, 990s delivered to American will be used for a comprehensive flight, maintenance, and familiarization program.

VANGUARD—GD/Convair and GD/Astronautics men study principles of new programming concept in corporation-sponsored seminar at San Diego. Standing (left background) is Dr. Robert F. Mager of Varian Associates, expert on teaching machine methods.

B-58 'Workhorse' Slated For Service With NASA

Hustler No. 4—until recently the most active B-58 flying, and a real workhorse in the GD/Fort Worth stable of test planes—has been returned for updating and reassignment.

Tentative plans are to modify No. 4 for National Astronautics and Space Administration, which will use the plane in simulated flights over regular commercial routes.

"Among other things, the B-58 would be used to determine handling characteristics of a supersonic plane on approaches to regular air fields," said Walter E. Alling, flight test control engineer who has been with No. 4 since the wing-mating stage.

A crew of E. E. Guthrie, pilot; G. C. Tate, navigator; and O. D. Lively, DSO, recently completed a series of 34 pod drops before turning the plane over for modification. The record included the first supersonic pod drop in 1957, 10 MB pod drops, 17 TCP upper-component drops and seven lower-component drops. Several of these were at low altitudes.

A. S. "Doc" Witchell was at the helm in August, 1957, along with Tate and B. D. Miller, when No. 4 roared aloft for the first time. Since then, she's logged over 165 flights. Only TB-58 No. 11 has made more.

Used mainly as a "test" aircraft, No. 4 once recorded as many as 567 items of test data on a single flight. "This possibly is the greatest number of points ever recorded by a plane on a single flight," Alling said.

Other test programs have included: MB pod drops; air conditioning system evaluation; environmental tests; sonic fatigue; stability and control; wing heaviness; and TCP air loads.

"Very likely the most unusual test was done on a Dynasoar wing panel (Dynasoar is a proposed manned orbital vehicle), fitted on a B-58 wing and tested through the Mach 2 speed sequence," Alling said. "We made about 20 flights alone on this project."

Alling came to know No. 4 "about as well as I know my wife" during the plane's flight history. He was "away from her" for only a few months in 1960, when No. 4 was in service at Carswell AFB.

GD

ASTRONAUTICS EDITION

GENERAL DYNAMICS NEWS

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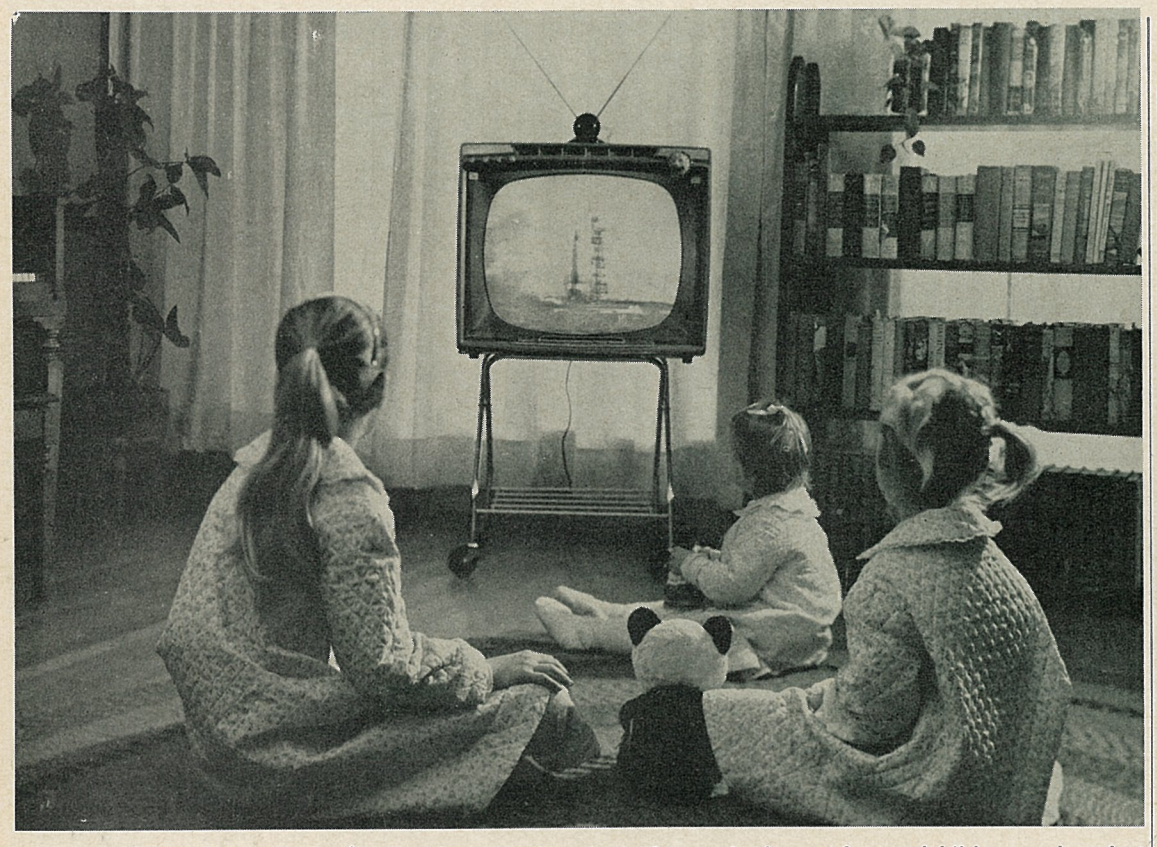

WATCHING WORLD—GD/Astro Photographer Jack Stevens' photo of grandchildren, taken just as Atlas 109-D lifted off, captures mood and feeling of a nation. Youngsters are Sandy, 10, Pam, 2, Sheri, 5, photographed at San Diego.

Roger Lewis Takes Over Presidency

Roger Lewis last week took over as president of General Dynamics Corporation, succeeding Earl D. Johnson.

Frank Pace Jr., chairman of the board, made the announcement Thursday following a directors' meeting in San Diego.

At the same meeting Johnson was appointed vice chairman of the board. Pace will remain chairman until the annual meeting April 26.

Lewis, former executive vice president of Pan American World Airways System and veteran aircraft manufacturer and airline executive, previously had been expected to take over "in April." The first announcement that Lewis would become General Dynamics president came Jan. 25 and since then he has visited most of the divisions to gain first-hand knowledge of problems.

A native of Los Angeles, Lewis was graduated from Stanford University in 1934 and went to work for Lockheed Aircraft in the metal shop, working up through manufacturing control and purchasing to become director of materials during World War II. In 1945 he was named assistant general sales manager.

Lewis joined Canadair Limited in 1947 as a vice president, went to Curtiss Wright in 1950 in a similar post before joining Pan American.

Atlas 109-D Puts Astronaut Glenn In Earth Orbit

Although within the General Dynamics family GD/Astronautics Division was the most directly concerned when an Atlas missile last Tuesday (Feb. 20) placed astronaut John Glenn in orbit, all of General Dynamics shared in the pride of accomplishment that extended throughout the nation.

It was a normal work day for most of GD/Astro at San Diego and the off-site bases, and the same applied at Cape Canaveral, except for Test Conductor Tom O'Malley and his Complex 14 crew of about 100, who launched Atlas 109-D. Only a few others at the main plant, and a scattered number of Astro men at tracking stations around the globe, worked an extended day.

Otherwise it wasn't a normal day at all. At rest breaks and lunch periods there was a dash to TV sets and radios, an exercise that GD/Astro shared with uncounted millions of others within and outside the U. S.

Timing favored West Coast listeners, for the most part. Many rose early to follow pre-launch coverage at home. Fortunate were those who found space around TV screens at the plant to watch the liftoff of Atlas 109-D at 6:47 a.m. (PST). Through regular work periods news concerning the flight moved quickly by word of mouth. Radio reports, piped into the cafeteria, covered the recovery of the Mercury spacecraft at 12:01 p.m. (PST) after a four-hour, 56-minute flight covering 81,000 miles through space.

From the start there was absorbing interest throughout General Dynamics, not at all limited to GD/Astro and GD/Electronics, the two divisions most directly involved. (GD / Electronics designed and built the control display system at Cape Canaveral that picked up data from 18 stations around the world, showing the capsule's progress.)

Naturally, those who designed, fabricated and tested Atlas 109-D were the most prideful, but so were the other thousands involved in Project Mercury. All had given 109-D their extra best. It had been a team effort in which 32,000 from GD/Astro and many more from other contractors had joined under NASA and Air Force leadership.

Memento pins, commemorating the flight, were placed on sale by GD/Astro employee services that day (2,000 of them) and as quickly sold! Souvenir copies of a notice of the flight were turned out and distributed free by the end of the first shift.

J. R. Dempsey, GD/Astronauics president, praised the work of all involved in the project in conjunction with other firms and governmental agencies.

"This flight marks the beginning of a new era in man's conquest of the unknown, an era which must be one of the most exciting in recorded history. Let us all work to make it an era in which the dignity of man will be the rule, rather than the exception, of world society," he said.

Astronautics' main plant was a key point in the press, radio and

(Continued on Page 2)

Convair 240 Flies Three Round Trips Weekly Coast to Omaha Via Walker and Schilling

GD/Astronautics airlift via Convair 240 aircraft to midwestern Atlas base activation sites has been consolidated into one schedule with the omission of Warren AFB from the itinerary.

Two planes were formerly used in the plant-to-base link operated to provide swift transport for priority cargo and passengers.

The new schedule finds one plane making three round-trip circuits per week. All flights depart from the Convair flight terminal at Lindbergh Field, and terminate at Eppley Field, Omaha, Neb.

Eastbound trips (Monday, Wednesday and Friday) leave San Diego at 7:30 a.m. with arrival (all local times) at Walker AFB, 11:50 a.m.; Dyess AFB, 2:30 p.m.; Altus AFB, 4:25 p.m.; Schilling AFB, 6:15 p.m.; Omaha, 7:35 p.m.

Westbound, the plane leaves Omaha at 7:30 a.m. on Tuesday, Thursday and Saturday, with local arrival times of 8:30 a.m. at Schilling AFB; 10:20 a.m., Altus AFB; 11:35 a.m., Dyess AFB; 1:10 p.m., Walker AFB; and San Diego, 4:30 p.m.

Employees traveling on company business make flight reservations by calling GD/Astro's travel desk, ext. 4355.

PICTURE STORY—Reading from top, this photo series scarcely needs caption. Facial expressions of GD/Astro President Jim Dempsey tell story as he watches liftoff over TV.—Photos by Astro Photographer Frank Tercey.

Log Book Entries

Promotions

MAIN PLANT

Promotions to or within supervision effective Feb. 12.

Dept. 101-1, Data Processing: To data processing asst. supervisor, F. N. Lawton, J. M. Baker.

Dept. 110-0, Contracts: To contract administrator, D. C. Templeton.

Dept. 143-3, Inspection: To inspection supervisor, R. H. Sparks. To inspection asst. supervisor, J. A. Baker.

Dept. 146-8, Reliability Control Engineering: To asst. reliability group engineer, G. C. Eggen.

Dept. 193-1, Industrial Accounting: To accounting asst. supervisor, F. B. McQueary.

Dept. 222-2, Production Control: To production control supervisor, J. P. Luther.

Dept. 250-1, Plant Engineering: To general foreman, R. F. Missman.

Dept. 322-3, Support Publications: To support publications supervisor, J. Porco. To asst. supervisor, L. W. Christner, B. R. Pruden.

Dept. 331-1, Supply Support: To GFE asst. supervisor, H. M. Dougherty.

Dept. 333-2, Off-Site Logistics: To asst. supervisor, L. J. Poindexter.

Dept. 335-2, Service Parts: To support logistics general supervisor, B. W. Kurch. To support logistics supervisor, W. R. Williams. To support logistics asst. supervisor, J. E. Endicott, R. E. Lovelace.

Dept. 337-0, Support Documentation: To parts documentation asst. supervisor, M. Edgin.

Dept. 351-0, Field Modification: To production control supervisor, J. J. Graham. To asst. foreman, D. E. Goodman.

Dept. 510-2, Engineering Management: To asst. project engineer, P. V. Smith.

Dept. 556, Electronics Design: To asst. electronics group engineer, L. Board, J. E. Fithian.

Dept. 591-1, Space Navigation and Data Systems: To asst. research group engineer, E. F. Godenschwager.

Dept. 604-0, Base Activation: To activation technical support asst. supervisor, R. V. Madonia.

AFMTC

Dept. 571, GD/Astronautics Operations: To chief of cost control-base, R. W. Brown.

ALTUS AFB

Dept. 617, GD/Astronautics Operations: To chief of administrative services-base, R. D. Rothacker. To activation engineering asst. supervisor, R. L. Cantarini. To asst. foreman, J. L. Baker, J. P. Falcone.

DYESS AFB

Dept. 618, GD/Astronautics Operations: To safety supervisor-base, A. W. Billitti. To production control asst. foreman-base, F. M. Gardner. To asst. foreman, A. J. Augustenborn, M. Prince, J. L. Sutton.

LINCOLN AFB

Dept. 616, GD/Astronautics Operations: To chief of administrative service-base, H. E. Zehring. To head nurse, A. M. Fudge. To asst. foreman, C. F. Stanfield, G. W. Stewart.

EDWARDS RS

Dept. 575, GD/Astronautics Operations: To chief of operations support, L. M. Barnes.

PLATTSBURGS AFB

Dept. 620, GD/Astronautics Operations: To launch complex asst. supervisor, E. A. Fish. To asst. foreman, M. E. Carroll. To activation engineering asst. supervisor, R. F. Goodhart. To production control asst. foreman-base, G. B. Reeves.

SCHILLING AFB

Dept. 615, GD/Astronautics Operations: To chief of schedules and analysis-base, H. H. Grogan. To safety supervisor, F. H. Christensen. To production planning asst. supervisor, D. G. Bagby. To asst. foreman, R. H. Wesselink. To production control asst. foreman-base, G. L. Williamson.

WALKER AFB

Dept. 619, GD/Astronautics Operations: To asst. foreman, W. R. Carey, W. B. Haney, G. Kukowsky, J. L. Miller.

WARREN AFB

Dept. 611, GD/Astronautics Operations: To technical support supervisor-base, E. H. Weinsheimer.

Births

MAIN PLANT

BARRETT—Daughter, Karen Eveline, 7 lbs., 1¾ oz., born Feb. 14 to Mr. and Mrs. Terry Barrett, Dept. 153.

FELLER—Daughter, Lisa Beth, born Feb. 3 to Mr. and Mrs. Murray F. Feller, Dept. 551-3.

GOLAKOFF—Daughter, Veronica Tona, 7 lbs., 4 oz., born Jan. 28 to Mr. and Mrs. Atanas I. Golakoff, Dept. 545-7.

HILL—Daughter, Cheri Elizabeth, 7 lbs., 15 oz., born Jan. 31 to Mr. and Mrs. Troy O'Brien Hill, Dept. 223.

KAVANAGH—Twin daughters, Teresa Lynn, 6 lbs., 4 oz., and Lisa Marie, 5 lbs., 14 oz., born Feb. 12/13 to Mr. and Mrs. James W. Kavanagh, Dept. 144-2.

ALTUS AFB

WEST—Son, Gregory Mark, 7 lbs., 8 oz., born Feb. 1 to Mr. and Mrs. F. V. West, Dept. 617-3.

LINCOLN AFB

GERRINGTON — Daughter, Yolanda Jeanne, 5 lbs., 5 oz., born Jan. 25 to Mr. and Mrs. Manley Gerrington, Dept. 616-9.

SCHILLING AFB

TAYLOR—Son, Jay Randall, 7 lbs., 7 oz., born Jan. 26 to Mr. and Mrs. John R. Taylor, Dept. 615-5.

Service Emblems

MAIN PLANT

Service emblems due during the period Feb. 16 through Feb. 28.

Twenty-five-year: Dept. 615-7, C. E. Roeder.

Fifteen-year: Dept. 351-3, S. L. Smith; Dept. 401-4, C. E. Buchanan; Dept. 545-4, C. Y. Thomson Jr.; Dept. 773-0, C. A. Fournier.

Ten-year: Dept. 143-7, W. J. Obereuter; Dept. 144-3, A. E. France, E. H. Lawton; Dept. 154-2, D. G. Reid; Dept. 220, Esther S. Barnard, Goldie E. Glaze, Phyllis F. Zandi; Dept. 250, Paul Burchette, Clease Larabee, R. E. Petty; Dept. 305-0, L. H. Robinson; Dept. 402-3, S. G. Ciolak; Dept. 510-6, Lam-Tai Cheug; Dept. 521-6, Arlona U. Diggins; Dept. 531-2, P. R. Stocker; Dept. 563-1, W. M. Gross; Dept. 567-6, M. M. Saunders Jr.; Dept. 595-1, P. S. Yip; Dept. 759-0, H. E. Tofteland; Dept. 771-0, L. L. Blakely, J. C. Hall; Dept. 833-1, H. E. Newton; Dept. 844-1, J. B. Etter.

ALTUS AFB

Fifteen-year: Dept. 617-7, M. L. Allen, J. R. Gillilan.

DYESS AFB

Ten-year: Dept. 618-4, D. C. Johannesmeyer.

LINCOLN AFB

Ten-year: Dept. 616-3, A. R. Ball.

PLATTSBURG AFB

Ten-year: Dept. 620-2, F. H. Bunch.

SCHILLING AFB

Fifteen-year: Dept. 615, R. W. Bunn, Aaron Davis.

SYCAMORE

Fifteen-year: Dept. 573, L. M. Craig, C. W. Ring.

WALKER AFB

Ten-year: Dept. 619-7, W. E. Dismukes.

Personals

WARREN AFB

Our sincere thanks to our many friends for their kindness following the recent loss of our baby. Your expressions of sympathy are deeply appreciated.

Mr. and Mrs. Jim Petroff, Dept. 611-4.

Deaths

MAIN PLANT

DEVLOO—Achille, Dept. 250-4. Died Feb. 19. Survived by stepdaughter, Mrs. Jeanette Limberg.

ROBINSON—Edward C., Dept. 250-4. Died Feb. 18. Survived by wife, Alice.

DYESS AFB

FIALKOWSKI — Sigmund S., Dept. 618-9. Died Feb. 7. Survived by wife, Agnes.

Assist Work Mgr. Named

W. E. Harrison, veteran General Dynamics executive, has been named manager of work distribution at GD/Astronautics, reporting to G. M. Robertson, director of management systems.

W. E. Harrison

Responsible for work assignment administration (Dept. 153-0), Harrison will coordinate between Astronautics and other General Dynamics Corporation divisions or subsidiaries for all types of work. Included are sending of requests for proposals, obtaining available capabilities and capacities and processing documents providing authority to other divisions for all work being assigned.

A native of Texas and former student at Texas Christian University, Harrison worked for GD/Fort Worth for 14 years before transferring to Astro late last year as a project administrator. His last Fort Worth position was chief of subcontract management. Prior to that time he was manger of the GD/FW resident office at Sperry Gyroscope Corp. His background includes duty as a purchasing agent, contract administration supervisor and other time spent in liaison, modernization, factory and engineering posts.

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Convair Editorial Offices, Bldg. 32, Plant 1, GD/Convair, Mail Zone 1-320, P.O. Box 1950, San Diego 12, Calif. Telephone CYpress 6-6611, ext. 1071. Staff: Grayce Fath, Helen Pemberton.

GD/Electronics (San Diego) news contacts: Info. Tech., Helen Wood, CY-8-8331, ext. 15; Milit. Prod., Betty Freeby, CY-8-4641, ext. 1377.

Fort Worth Editorial Offices, Col. 72, Admin. Bldg., GD/Fort Worth, Mail Zone 0-50, P.O. Box 748, Fort Worth 1, Texas. Telephone PErshing 8-7311, ext. 2961. Staff: Dave Lewis, editor; Mary Beck.

Pomona Editorial Offices, Room 106-D, Bldg. 1, GD/Pomona, Mail Zone 3-3, P.O. Box 1011, Pomona, Calif. Telephone NAtional 9-5111, ext. 6226-5279. Staff: James Combs Jr., editor; Carol Colbert. Daingerfield news office, P.O. Box 947, Daingerfield, Texas. Telephone Lone Star, Texas, 2211, ext. 424.

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Atlas Places Astronaut In Earth Orbit

(Continued from Page 1)

television coverage of the event. Many pre-launch films were made and shown, featuring the plant and its personnel. No less than 10 television cameras were stationed there for the flight. The factory, a Bldg. 4 "unofficial" tracking station, and a TV control center were shown repeatedly on two major networks.

The tracking station gathered data on Glenn's respiration, heartbeat and voice for possible use later in aero-medical studies. In all, signals were received for about 15 minutes on three passes over San Diego.

By late afternoon the press room and TV center were empty and giant vans of TV equipment had rolled out of the Astro plant.

On the Atlas assembly line, in fabrication areas and test installations were other Atlas vehicles destined for the Mercury program. They, too, were receiving the same attention previously afforded Atlas 109-D.

The lives of other Astronauts are at stake, just as Glenn's had been, a continuing challenge to all GD/Astronautics employees.

Garrison to Attend Capital Conference

J. W. Garrison, General Dynamics/Astronautics chief safety engineer, will take part in the President's Conference on Occupational Safety in Washington, D. C., March 6 through 8.

At the invitation of President Kennedy, Garrison will join more than 3,000 other leaders from all occupations sharing concern with safety.

During the three-day meeting they will endeavor to plan and apply voluntary, cooperative means of reducing the number of deaths and disabling injuries resulting from on-the-job accidents.

Theme of the conference is "Safeguarding Human Worth." Labor Secretary Arthur Goldberg serves as conference general chairman.

BARBARA PROPPE WINS FOIL TITLE

GD/Astro daughter Barbara Proppe of ARA-CRA Fencing Club recently teamed with members of another local fencing organization to form a San Diego State College women's foil team.

In their first competition, the UCLA Intercollegiate Fencing Tournament in Los Angeles Feb. 17, the team placed second. Barbara won the women's individual foil championship.

Finals were directed by Jan Romery, Olympic contender and national champion, who presented Barbara with the Romery Medal for "best form" in fencing.

Dan Jones, Convair son, and also a member of ARA - CRA club, finished second among men in a Feb. 18 tournament sponsored by UCLA.

New Phone Number For Travel Assigned

A new telephone number has been announced for General Dynamics/Astronautics travel reservations office located in the materials building (92).

To arrange authorized travel on company business employees now call ext. 4355 instead of the old number, ext. 636.

GD/Convair and Astro Set Salvage Hours

Employee sales hours at GD/Convair and GD/Astro salvage yards will be open on the following Saturday morning schedule during the next month:

GD/Convair—March 3, 17, 31.

GD/Astro — March 10, 24.

Plant 2 Construction Under Way To Expand Clean Room Facility

Construction now under way in Bldg. 3, Plant 2, will provide General Dynamics/Astronautics' support center by April with an additional 3,300-sq.-ft. environmentally-controlled area for precision clean room operations.

The facility will be used by support operations (Dept. 344-4) in repair and modification of liquid oxygen, hydraulic and pneumatic parts returned from Atlas ICBM bases.

The new 30x110-foot clean room is located in Bldg. 3 along the east wall near the northern end of the building. It is divided internally into seven principal areas.

After disassembly, repair and pre-cleaning in the support center, parts move to a final cleaning room within the environmentally controlled area where they are precision cleaned and flushed.

From here, hydraulic parts go to an assembly room and then to a functional testing area, both within the facility. Liquid oxygen and pneumatic parts leave final cleaning through a four-by-eight-foot vacuum oven into an assembly area; move on to a functional testing room; and are finally packaged and sealed in still another "inside" room.

The facility also contains a chemical laboratory where constant checks of cleaning effectiveness and analysis of cleaning fluids will be conducted by support quality control's reporting and analysis group (Dept. 144-1).

Environmental control, including a slightly higher pressure inside the clean room to exclude dust, temperature and humidity control, will be provided by new air handling equipment connecting to an existing air conditioning unit in Bldg. 3.

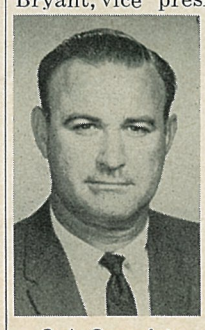
Other equipment supporting the facility will be mounted on a 12x60-foot structural steel platform adjacent to the clean room outside the building.

Design specifications for the new facility were established by GD/Astro's plant engineering (Dept. 250-2) with Charles Davis Jr., project engineer, and Les Frech, process engineer.

Construction is being accomplished by Teyssier and Teyssier, with Astro's Al Ward (Dept. 250-2) assigned as field engineer. Industrial engineering is represented on the project by Joe Barrett, area engineer.

Grossaint Chief Tool Engineer

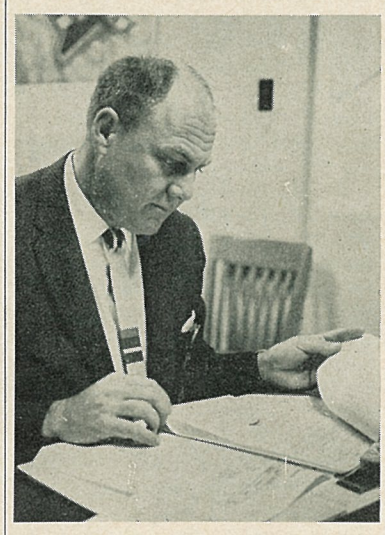
Appointments of G. A. Grossaint as chief tool engineer and S. L. Shipstead as superintendent of off-site base support have been announced at General Dynamics/Astronautics by E. D. Bryant, vice president-operations.



G. A. Grossaint

Grossaint reports directly to Bryant and replaces L. G. Granstedt. Shipstead reports to D. F. Kline, acting manager of production control, and replaces L. W. Kerner. Both Kerner and Granstedt have taken new posts with the new Astronautics Centaur organization (**GD NEWS**, Jan. 31).

A native of Kankakee, Ill., who attended secondary school and colleges in the San Diego area, Grossaint joined Astro's parent company in 1939 as a helper in



S. L. Shipstead, newly named off-site base support superintendent.

experimental. Working at GD/Convair, he moved up through the ranks with jobs in engineering and experimental in addition to tooling functions where he spent the majority of his time. In 1956 he was named a tooling general supervisor and came to Astro in 1960 as tool engineering superintendent.

C. C. Pope has been named general supervisor of tool engineering.

Shipstead hails from Minnesota, attended Luther College and graduated from the Minnesota Aircraft School of Minneapolis. He joined GD/Convair in 1941 as a dispatcher. He moved into supervision in 1942 and except for two brief periods away, moved up in production and manufacturing control organizations. From 1952 he served as a general foreman. In 1960 Shipstead came to Astro and was named chief of operations service and then chief of production control at Forbes AFB. He returned to San Diego in 1961 as manufacturing control off-site base administrator.

Material Dept. Men Named

Material department organizational changes and the promotion of J. M. Hanley to manager of material contracts and services have been announced at General Dynamics/Astronautics by F. J. Traversi, director of material.

J. M. Hanley

In other moves, C. G. Keach, formerly manager of procurement, becomes manager of subcontract administration, while L. W. Jones who held the post now filled by Hanley succeeds Keach.

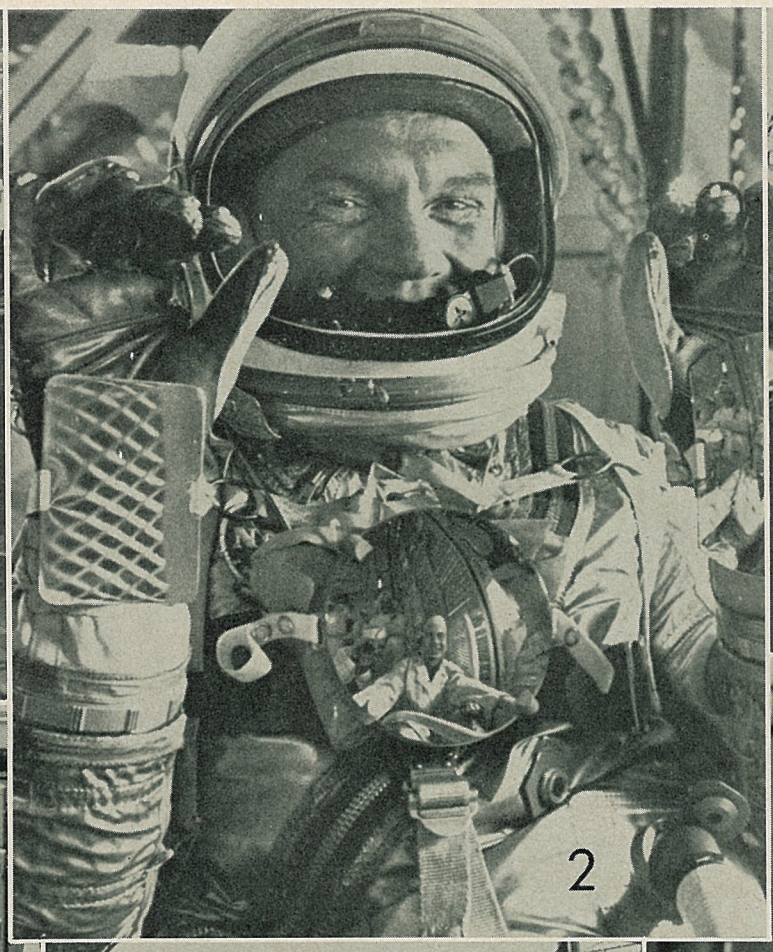
J. H. Johnson, purchasing agent, special assignments, replaces Hanley as material contract adviser.

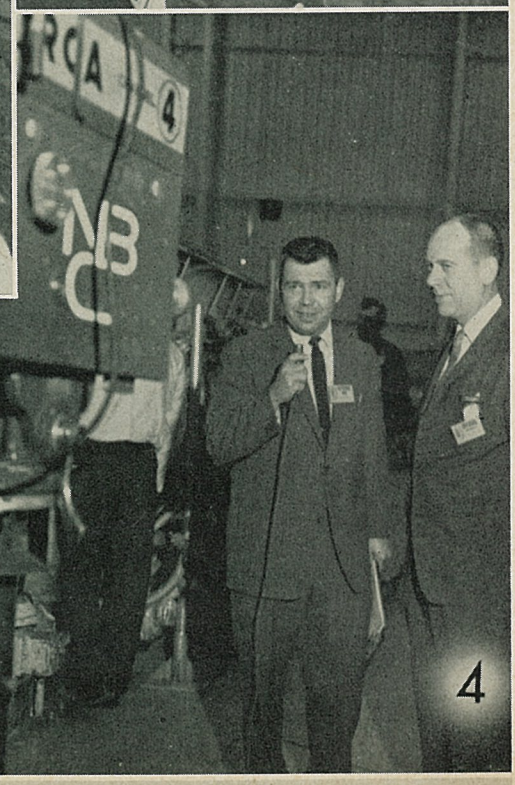
S. W. McBain and T. A. Scott exchange responsibilities as chief of vendor research and analysis and material project administrator respectively.

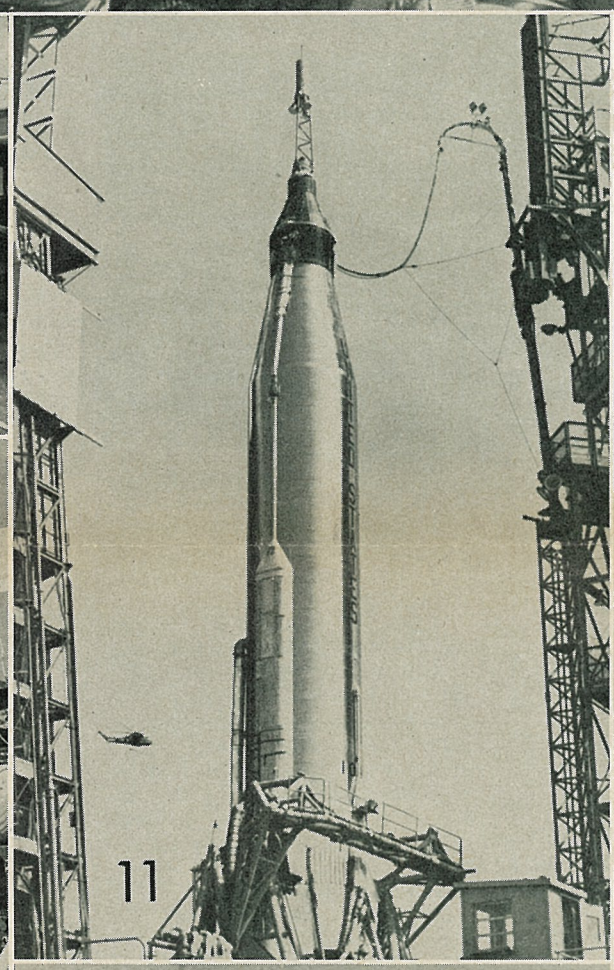
Hanley is a native of North Dakota and graduate of Union College in New York and the University of Chicago Law School. He practiced law and served as both states attorney and assistant attorney general of North Dakota before entering the U. S. Army in 1941. He retired in 1960 as a full colonel and joined Astronautics, serving as a technical buyer and material contract adviser prior to his appointment.

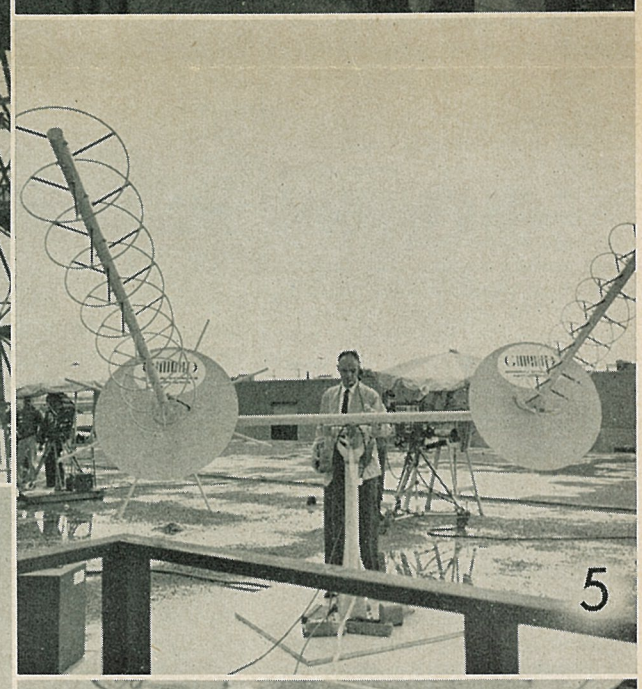
Keach comes from St. Louis and attended UCLA and the University of Southern California. He worked for Northrop for 17 years and rose to chief purchasing agent. Joining Astronautics in 1959, he was first a general purchasing agent and then manager of procurement.

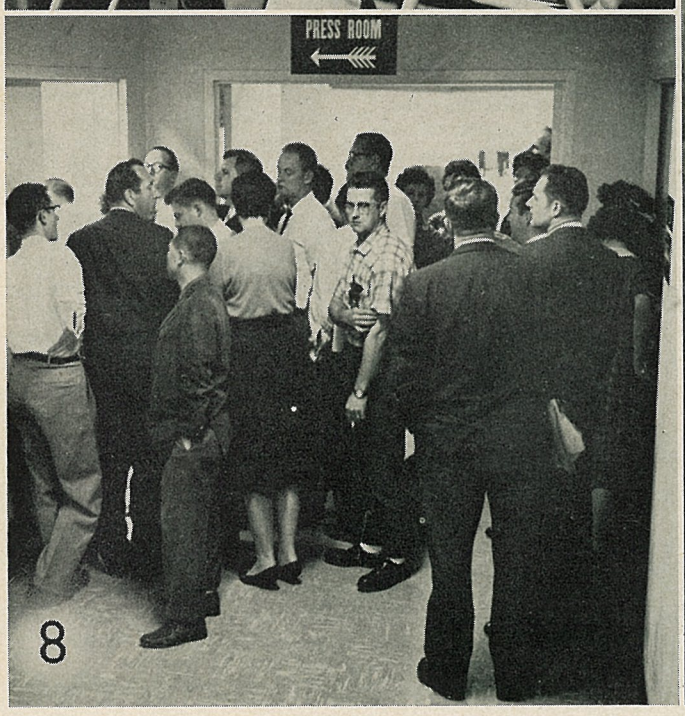
Jones is from Jackson, Mich., and a graduate of Wayne University and the Army Industrial College. From 1942 until 1954 he served in the Army and Air Force, retiring as a full colonel. He worked for Rohr Aircraft for six years and joined Astro in 1960 as contract representative. He was a material adviser and then material control and services administrator before taking his new post.

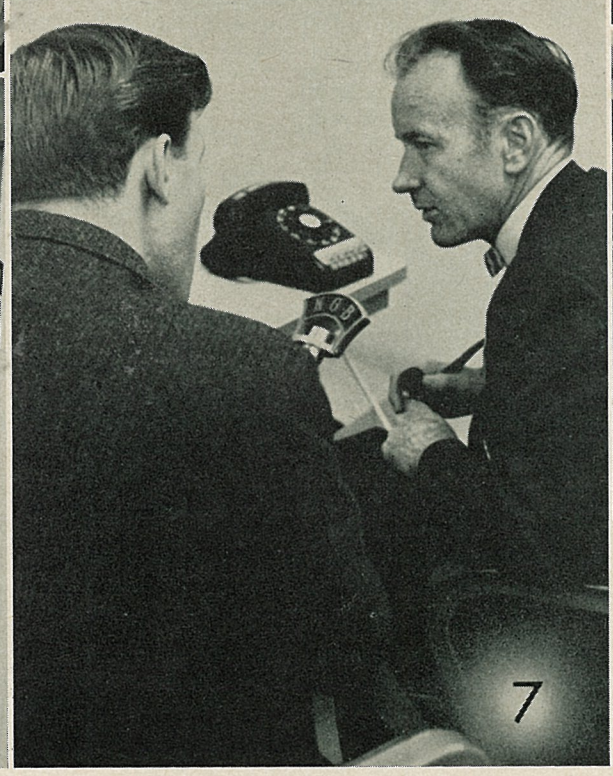


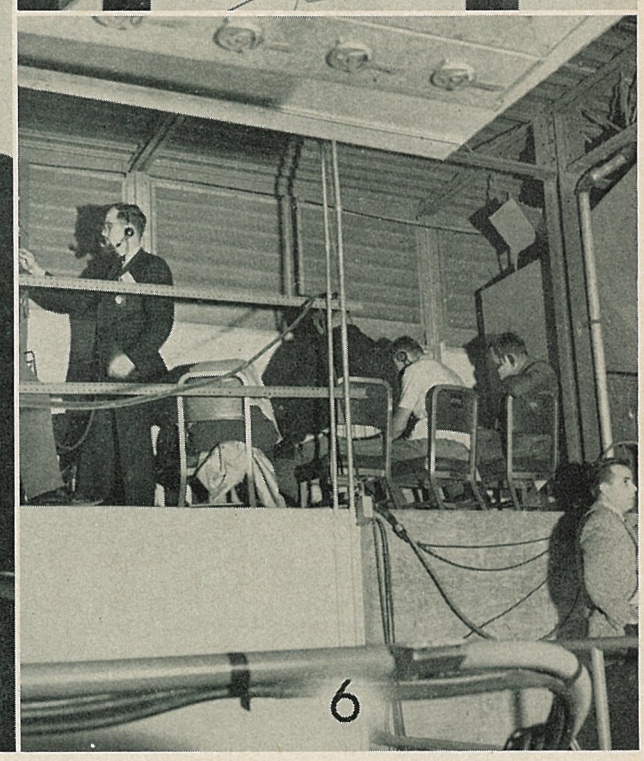




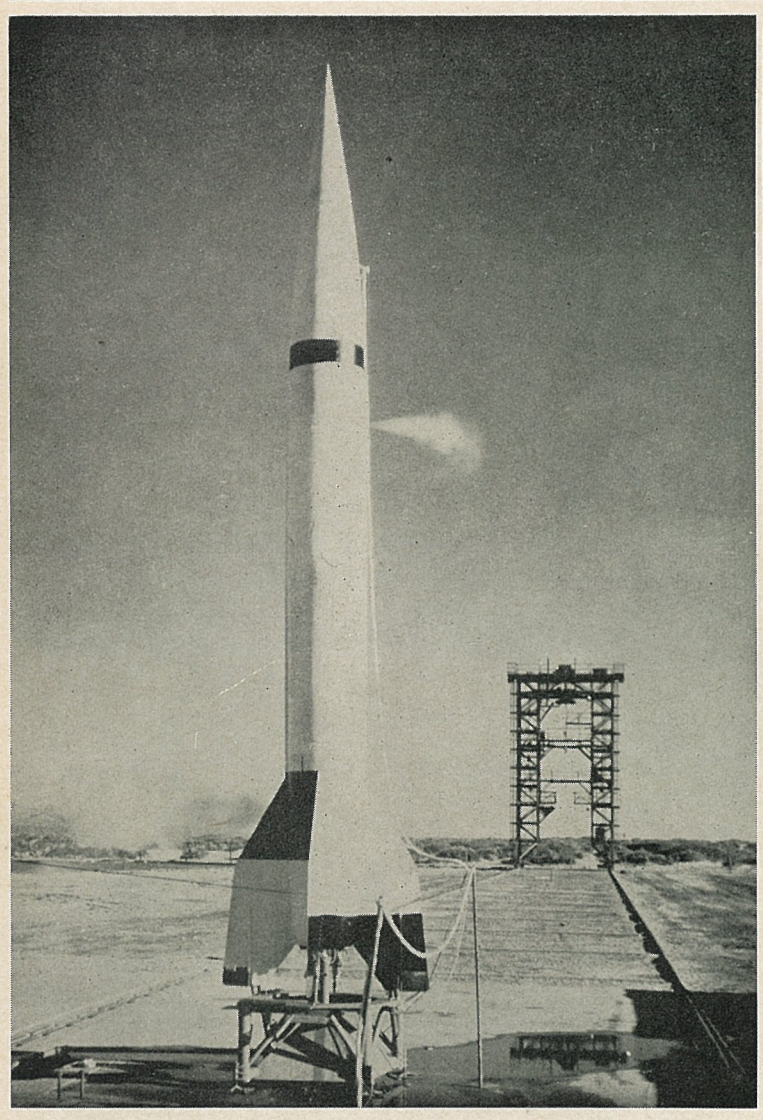








MERCURY HIGHLIGHTS—(1) Lucky few grab look at TV during rest break at GD/Astro plant in San Diego while (2) Astronaut John Glenn was orbiting earth, put aloft by Atlas missile. (3) Glued to radio broadcast are Col. H. E. Moose, AF Plant Rep, E. C. Keefer, Fenton Miller, Mort Rosenbaum, E. D. Bryant. (4) Bryant, vice president—operations, is being interviewed for TV. (5) Tracking station on roof of GD/Astro plant picked up signals from capsule for total of 15 minutes, relaying them (6) inside plant to monitor station. (7) P. E. Culbertson, chief project engineer for Atlas space launch vehicles project management, is interviewed. (8) Although Press Room was "off limits," few got peek inside. (9) Meanwhile at Cape Canaveral K. J. "Charlie" Bossart visits with group of local students who have built own tracking station. Bossart, widely called "Father of the Atlas," led band of engineers during early development. (10) Key Astro figure in launch was Thomas J. O'Malley, shown at command post at Cape. From here he directed 100-man team that launched Atlas. (11) Atlas 109-D, shown on pad at Cape.



ON THE PAD—Pictured at White Sands in 1948 is MX-774 test vehicle, predecessor of today's Atlas.

MX-774 Study Fathered Many Missile 'Firsts'

(With this, the 78th installment, General Dynamics NEWS' history of GD/Convair products comes to a close. It is exactly three years since the series began.)

The Convair-Air Force missile MX-774 introduced a number of "firsts" in rocket development. Because the test vehicle was kept under tight security wraps, however, its features did not become widely known. Its innovations, now part of the worldwide state of the art, have sometimes been credited to other, later missiles. These firsts (for the western world at least) included:

SWIVELING MOTORS. To control the V-2 in flight, German designers employed movable graphite vanes, placed like rudders in the jet stream. This imposed a considerable loss of thrust, and also brought problems of vane erosion. Charles Bossart, MX-772 project engineer, planned a power plant of four 2,000-lb. thrust rocket motors, each swiveling independently on a different axis. Thus, pitch, yaw and roll could be controlled by moving the motors to change the direction of thrust. Reaction Motors, Inc. was induced to undertake a motor of this design in the summer of 1946, and it proved successful.

The swiveling motor had been a theoretical concept for years, but Convair's design and development of a practical working system revolutionized rocket missile control methods. (A kissing-cousin of this system was used later in the Navy's famed Viking, first fired May 3, 1949. It had a single RMI motor of 21,400 lbs. thrust, mounted in gimbals for movement in any direction. Stream jets in the external fins controlled roll.)

SEPARABLE NOSE CONE. To obtain data during test flights, the Germans used a rudimentary telemetering system. (In one period of developmental desperation, when every test missile was disintegrating near the end of its flight, they stationed engineers with binoculars in the predicted impact areas.) In addition to using telemetering, Bossart and his associates conceived the idea of severing the nose cone and parachuting the rest of the falling missile to earth for recovery of recorded data.

FEATHERWEIGHT CONSTRUCTION. Since the entire V-2 was required to re-enter the atmosphere, it was necessarily built of steel ribs and stringers, with a skin of .025-inch steel sheet. Convair designers employed aircraft-type aluminum alloys, and introduced another revolutionary concept, "integral tankage." By making the missile's skin serve also as a wall of the oxygen and alcohol tanks, tremendous weight savings were realized. (The Viking program used integral tanks starting with the third missile.)

The MX-774 launchings were staged at White Sands July 13, Sept. 27 and Dec. 2, 1948. As always in rocket trails, the engineers had disappointments. On each occasion the missile took off as expected, but suffered premature fuel cutoff during flight.

(The cause was not known for certain, but analysis of test data indicated malfunction of a solenoid valve, possibly because the mechanism was thrown into severe vibration at its resonant frequency.)

In any event, the tests attained major objectives. Flight was stabilized with swiveling motors, and in reaching velocities several times the speed of sound, the missile passed successfully through the most critical control, pressure and aerodynamic stages.

Remote guidance was not used in these tests, but the method under development for MX-774 was so promising that the Air Force contracted with Convair to continue the work.

Project MX-774 died with the last missile fired in December, 1948, but Bossart and his missionaries were not to be denied. Until 1951 Convair continued ICBM studies on a limited scale, using its own funds for research on such problems as propellant combinations, staging techniques and re-entry questions. With the outbreak of the Korean war, accompanied by increased military appropriations, attention returned to the ICBM program and in January, 1951, the Air Research and Development Command granted contract MX-1593 which later became Project Atlas and resulted ultimately in development of the Atlas missile and creation of General Dynamics/Astronautics Division.

C. C. Flagg Retires; Veteran Aircrafter

C. C. Flagg, veteran General Dynamics employee was feted by more than 100 Astro friends at San Diego last night (Feb. 27) in honor of his retirement.

Gathered at the Mission Valley Inn, those participating called the event a "Salute to Flagg." During his long career in the field of aircraft and missile work, Flagg designed and built 18 aircraft for commercial, racing and stunt use.

Flagg has been with Astro since 1961, serving as chief of procurement inspection. Prior to that time he was with GD/Fort Worth. His service includes work dating back to Consolidated Aircraft days.

Atlas Chosen In High Speed Re-entry Study

National Aeronautics and Space Administration (NASA) has announced still another role for Atlas "D" launch vehicles to play in the field of space exploration.

Called Project FIRE, the program involves high speed re-entry heat research. It will obtain data on materials, heating rates and radio signal attenuation on spacecraft re-entering the atmosphere at speeds of about 24,500 miles per hour.

Information from the program will provide the future technology required for protecting manned and unmanned spacecraft from blazing destruction upon re-entry from lunar missions. This environment cannot be duplicated in any known ground facility, NASA indicated.

Plans for two launches of Project FIRE re-entry spacecraft, each carrying different instrumentation systems, within the next two years have been announced by NASA.

Atlas "D" boosters will launch the re-entry spacecraft weighing approximately 200 pounds and a velocity package containing guidance components and the Antares solid fuel rocket motor (third stage of the Scout vehicle). After reaching peak altitude under Atlas power, the velocity package provides the additional speed and spacecraft orientation in its descending flight.

Launches are scheduled for Cape Canaveral. Recovery of the spacecraft will not be attempted. Data will be obtained by telemetry, radar and optical tracking systems.

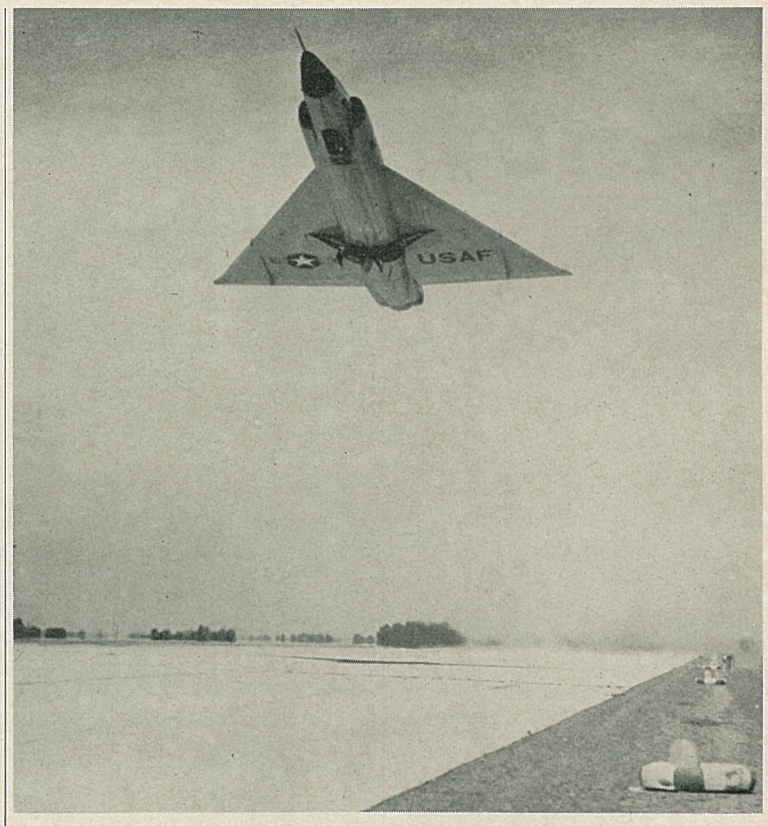
Delta Tops Its Own Chicago-Miami Mark

Delta Air Lines beat its own official speed record from Chicago to Miami with a Convair 880 jetliner this month.

The 880 reached a top speed of 715 miles an hour, helped by a strong tail wind, during the 1,258-mile trip. It took one hour, 50 min., 55 sec., to reach Miami International Airport from Chicago's O'Hare Field on Feb. 11.

Previous officially-timed record was two hours, one minute.

"Keep diggin' . . . "



JAPAN GUARDIAN—Editor of Japanese newspaper rode Convair-built TF-102A such as this to break sound barrier during training flight over Japan.

Practice Scramble

Japan Editor Writes Colorful Account of Flight in TF-102A

Breaking the sound barrier in a TF-102A was among experiences described by a Japanese editor in a recent article published in one of Japan's leading newspapers, Asahi Shimbun.

Quoting Mr. Kato, Asahi Shimbun editor, on his flight in a Convair-built jet interceptor attached to the 40th Fighter-Interceptor Squadron, Yokota Air Base, Japan:

"With Capt. Robert D. Goertz, pilot, I awaited 'scramble' orders, a 20-thousand yen white helmet on my head, a dark green oxygen mask on my face, a cushion that becomes a life raft in case of emergency placed on the seat, and a parachute complete with a high-altitude bail-out oxygen bottle on my back.

"We were in the cockpit for nearly an hour when the scramble orders rang through the receiver in my helmet with detailed information as to altitude and direction.

"The engine started and the canopy lowered and we headed for the runway. A few hundred feet from its start, the airplane jerked forward pressing hard on my back — the afterburner was ignited and a tremendous thrust was added.

"The takeoff speed is not necessarily very fast but the rate of acceleration is terrific.

"Immediately after we cleared the runway and while we were still ascending the afterburner was shut off. This is to comply with procedures to minimize noises over populated areas. Altitude 6,000 meters. 'Destination: Sado, receive further instructions from the radar site there,' came over the radio.

"The noise that shakes up man on the ground is hardly 'annoysome' when filtered by the earpieces and the air-conditioned cockpit gives no such sense of speed as 300 meters per second. (Ed's. Note—1 ft. equals .3048 meter.)

"There are three squadrons equipped with F-102As in Japan charged with air defense of this country.

"At every minute four planes are on alert with each of these squadrons and like the one I was in, there are always a few airborne on a training flight.

"When a radar site on the coast detects an unidentified aircraft, it notifies the Air Defense Center which in turn puts out scramble orders to the squadrons. The radar site, meantime, traces the unidentified plane and guides the fighter to its location.

"In the nose of the F-102A, there is a radar receiver for locating enemies and zeroing-in on the target. When an enemy plane is sighted by the radar a computer automatically calculates and fires the missile or rockets, the machines do the job, and man just sits there.

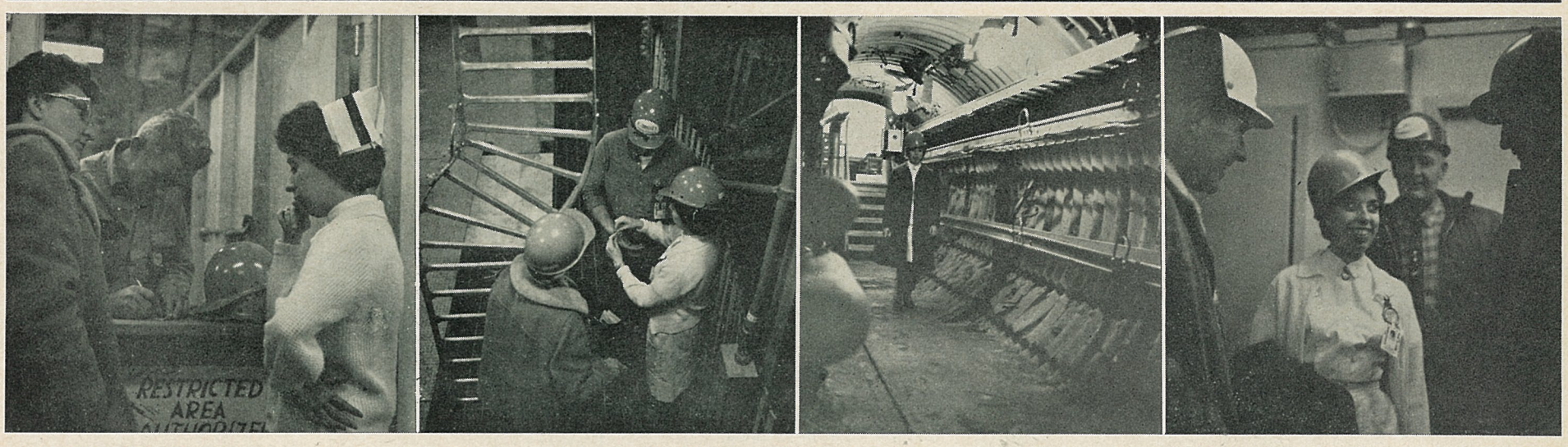
"Watching the radar screen, about 20 cm. in diameter, I found an enemy plane on the orange surface, the plane fits into the target sight, the armament is fired, and the visions on the radar screen start dancing. Even beautiful electronic patterns on the screen, hardly malicious or deadly, do not speak of fatal enemies.

"After the practice was over, we passed over Noto Peninsula, by Mt. Fuji and to Miyake-jima, where there was nothing but clouds below and dark blue skies above—altitude over 10,000 meters. 'You won't notice when we break the speed of sound,' said Captain Goertz as he ignited the afterburner. The needle on the Mach speedmeter moved up to .8, .9, and after hesitating once or twice moved past 1.0—all in a matter of a few seconds . . .

"When the plane leveled up from a steep dive, I could not lift my camera off my lap. When, after a steep ascent, the plane suddenly leveled off the aerial charts floated amid the cockpit and I could not feel the weight of my camera—all of this a result of the mischievous pranks of the G forces."

* * *

F-102As are based at Yokota Misawa, and Itazuki in Japan assigned to 5th Air Force of PACAF. General Dynamics/Convair field service representatives assigned to these bases report to Rudy Haas, area supervisor for GD/Convair field service in the Far East. Passing along the Japanese editor's impressions was James R. McMahon.



DUTY NURSE—Few nurses work in "hard hats" but sometimes it is "uniform" at GD/Astro off-site bases. At top left, Nurses Nancy Blondo and Florence Chladek check in with L. Boisley at Atlas site. Latter is transfer from Warren AFB. Second from left, Nancy pauses to administer first aid (band aid) to Tony Lucier. Next photo shows Nancy en route through tunnel to silo and at right she greets friends. Photos by John Oldenkamp.

Reflector 'Cities' Built For B-58 Bombing Runs

B-58 Hustlers and other bombers in the nation's nuclear retaliatory force are routinely "bombing" two "reflector cities" located in sparsely populated areas of the U. S.

Constructed of telephone poles on which triangular-shaped sheets of aluminum are mounted, the "cities" are located about 70 miles southeast of Rapid City, S. D., and at a site 25 miles northeast of Glasgow, Mont.

According to SAC, the reflectors can be located to give reflections on a plane's radar. Reflections can be made to resemble a bridge, warehouse, office building, river, or virtually any other type target.

Target changes within the four-mile square "cities" are made by altering the angle of the reflectors. Each reflector city has about 180 25-foot telephone poles planted a certain distance apart. Each pole has two reflectors, one for high-altitude practice and one for low-level.

Accuracy on the simulated release of a bomb is measured by a radar bomb scoring unit located nearby. Radar bomb site (RBS) devices "lock on" incoming bombers and track them on a plotting board.

Just before simulated release of a bomb, the aircraft transmits a radio tone signal to the RBS site. By stopping the tone, the aircraft crew indicates its point of release of the simulated bomb. This is plotted on the RBS board with maximum accuracy.

16 GD/FW Men Earn Masters

A total of 16 General Dynamics/Fort Worth employees received advance degrees in the Southern Methodist University Graduate program Jan. 23. Employees and degrees received are:

Masters in engineering (electrical): R. R. Bauerlein.

Masters in engineering administration: D. R. Aertker, C. D. Little, A. J. Pentikis and R. E. Purnell.

Masters in aeronautical engineering: E. G. Clifton and R. M. Walker Jr.

Masters in civil engineering: L. I. Guidry and S. D. Manning.

Masters in electrical engineering: J. A. Coker, J. R. Forester, W. J. Fuhrman and A. E. Soniat Jr.

Masters in mechanical engineering: K. L. Cornelius, H. E. McDill and G. A. Wiley.

All employees are Dept. 6 except Wiley, who is in Dept. 85-2.

DYNAMICS SPEAKERS ON METALS SEMINAR

Two General Dynamics specialists will be among speakers at a four-session educational seminar on thermo-electric devices sponsored by American Society for Metals, San Diego Chapter.

Lectures will be March 1, 6, 8, 13 at Solar auditorium, 2200 Harbor Drive, at 7:30 p.m. A nominal charge will be made.

Dr. Robert Pidd and Dr. Park Miller of General Atomic are slated to give two of the talks on advanced means of converting heat into electricity. Other speakers will be Dr. Leonard Grossman of General Electric Co. and J. J. Connolly of the Office of Naval Research.

Further details may be obtained from Jerry Langford, GD/Convair, ext. 2492, Plant 1, and Ernie Mikus, GD/Astronautics, ext. 737.

GD/FW Men Discuss Automation Impact

E. L. Magers, industrial relations representative, and J. E. Wilson, industrial relations analyst, at General Dynamics/Fort Worth, were speakers at the recent fourth annual institute of the International Association of Personnel in Employment Security.

Magers spoke on "Impact of Automation Upon Industrial Relations." Wilson's speech was "Reemployment of Workers Displaced by Automation."

Stanley Office Is Realigned

Realignment of the General Dynamics/Fort Worth resident office at Stanley Aviation was announced recently by President Frank W. Davis.

B. L. Woolfolk is manager-GD/FW resident office at Stanley, reporting to R. Kahn, subcontractor operations manager.

H. F. Wiseman is assigned as subcontract management production specialist, responsible for coordinating all activities associated with manufacturing and delivery of B-58 capsules.

Oscar Wehmanen is project engineer, responsible for coordinating GD engineering activities, including design, testing, handbooks and reliability.

E. Cartwright is assigned as quality control specialist, while C. B. McWilliams is manufacturing control specialist.

Two More B-58s Fly to Peru

Production Hustlers No. 94 and 95 were delivered to 305th Bomb Wing at Bunker Hill AFB this month, increasing to 30 the number of B-58s on hand at the Peru, Ind., base.

Sorties of about four hours duration were flown on each of the delivery flights.

A crew of Capt. D. J. Hall, pilot; J. W. Colford, navigator; and 1st Lt. R. J. Panek, DSO, ferried No. 94. A supersonic sprint was included in the flight.

No. 95 was delivered by a crew of Capt. W. E. Hale, pilot; Capt. D. D. Dckey, navigator; and 1st Lt. G. P. O'Connor Jr., DSO. Another B-58—either 92 or 96—was also slated for delivery to Bunker Hill in late February.

MULTIPLE WEAPON B-58s DEMONSTRATE OVER TWO FRONTS

Flight demonstrations on two B-58s modified to multiple-weapon configuration began on separate fronts this month.

A crew of over 30 GD/Fort Worth maintenance and engineering personnel accompanied B-58 No. 38 to Kirtland AFB, N. M., where testing is slated to run through late 1962.

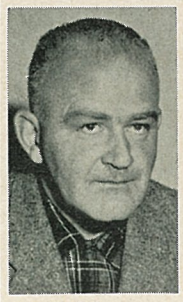
A series of loads tests was completed on No. 42 at GD/Fort Worth, following a pair of shakedown flights.

While conducting multiple-weapon drops, the two planes will be used to wind up the few remaining drops in the two-component pod program. Crew for No. 38 is comprised of Fred Voorhees, pilot; Fred Hewes, navigator; and Kem Timpson and O. D. Lively, alternating as DSO. The crew made an upper component drop over White Sands Missile Range early in February, then followed up with two multiple-weapons drops from Albuquerque later in the month. Only one of the four additional bombs—in each case from an aft position—was dropped on these runs. Another flight to obtain stability and control data was completed on No. 38 this month.

Virtually every combination of drop, from various altitudes and through a wide range of speeds, will be undertaken with No. 38. All flights were run "as predicted," and were considered successful.

Laven Heads Corp. Office at Geneva

Ted Laven this month was appointed manager of the General Dynamics Corporate Office at Geneva, Switzerland, by President Earl D. Johnson.



Ted Laven

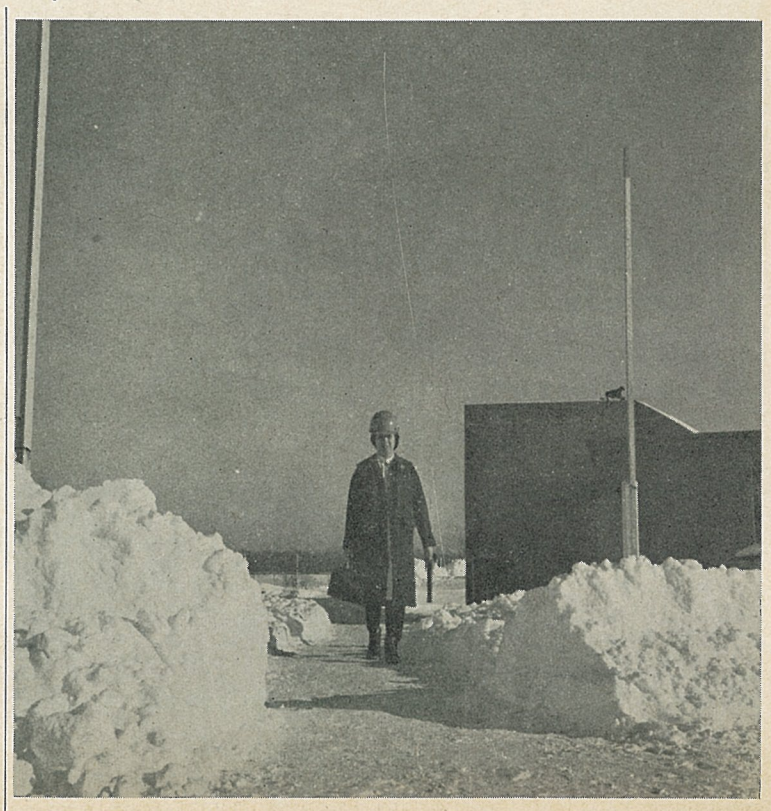
A veteran "expatriate" who has spent more than a dozen years abroad for the company, Laven will be responsible to C. L. Meador, vice president-contracts, for commercial sales activities; and will report directly to K. M. Smith, vice president - program development, for military relations activities.

GD/FW's Safety Mark Lowest of Big Firms

General Dynamics/Fort Worth has won group A aeronautic award in annual competition sponsored by Texas Safety Association, Chief of Safety Fred Temple was notified last week.

"The award is based on frequency rate of disabling injuries during the year," Temple said. "We had the lowest in the state for firms with over 500 employees."

Award will be made to B. G. Reed, GD/Fort Worth vice president-operations, at a March 27 luncheon in Dallas' Adolphus Hotel. Temple is in charge of a general industries program in connection with the award.



OFF TO WORK—Nurse Nancy Blondo, typical of medical staff members at far-flung GD/Astro bases, is shown en route to launch control center at Plattsburgh AFB site.

Nursing Network

Despite Isolation, Medical Aid Always Near at Atlas Bases

No matter how remote their duty stations, General Dynamics/Astronautics folk on the job activating Atlas missile bases are close to prompt medical attention.

Routine first aid may be administered by an Astro registered nurse. Serious cases call for the services of a doctor or hospital in a nearby community. Readily available are ambulances.

The three—nurses, doctors and ambulances—form the backbone of a unique medical support organization created by Astro. It has been in operation since activation work began and is currently centered at six hard (or silo) bases.

(Test bases also boast outstanding medical support, although organized somewhat differently from operational bases.)

Astro employees have compiled remarkable safety records in activation work, despite potentially hazardous conditions. Extremely low accident ratios have resulted. However, accidents do occur. Cut fingers, eye irritations, etc., are the most frequent.

Treating them are registered nurses, 15 assigned to each base. Under a head nurse, they man first aid stations at every launch complex and at the main base as well.

Assignment as a site nurse has its challenges. In early construction phases the temporary first aid station may be set up in a shack, lacking adequate heating and plumbing. But the site nurse adapts and learns to improvise, until a permanent station is provided.

While treatment usually is at the first aid station, the site nurse must know every detail of the launch complex. To be prepared in case of sudden need, she must know the location of all emergency equipment and how to reach any part of the site quickly.

As sometimes the only women to visit a site, the nurse may have to be "house mother" as well.

"They have been known to mend torn clothing as well as bodies," Head Nurse Norma Dutch at Plattsburgh recalled.

Astronautics does not assign a doctor to each base. Instead, it makes arrangements with local physicians or base medical units.

Ambulances are either from near communities or assigned to the complex, if no local services are available. Many sites are so remote a fleet of Astro-operated ambulances is necessary to fill base needs.

Dr. A. J. Bellanca, Astronautics chief physician, administers the entire program.

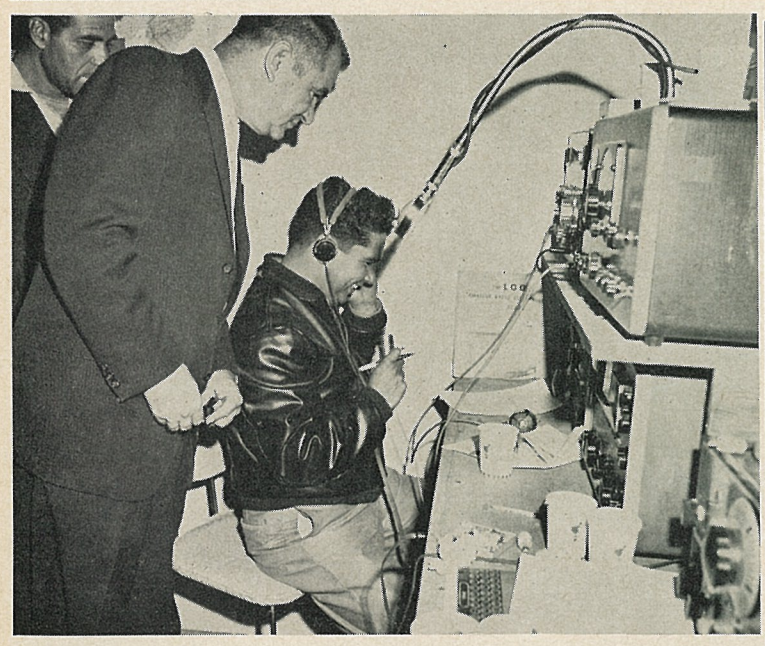
"We are fortunate in having teams of skilled and dedicated nurses," Dr. Bellanca said. "We transfer nurses from base to base as activation is completed, or else hire experienced nurses locally."

Wives in Top Posts Of Scouts Council

Three General Dynamics Corporation wives are filling top posts in the San Diego County Council of Girl Scouts for the coming year.

Mrs. Florence Kincaid, wife of GD/Convair's G. J. Kincaid, in liaison engineering, is newly-elected president of the Council.

Serving with her are Mrs. Mildred Lawson, as second vice president, and Mrs. Mary Alice Farnsworth, third vice president. Mrs. Lawson's husband, L. G. Lawson, is tooling inspection supervisor at GD/Convair. Mrs. Farnsworth is the wife of F. R. Farnsworth, GD/Astronautics engineer.



QUIEN SABE?—Astro and Tijuana Radio Clubs have overcome language barriers through mutual interests. Astro visited Tijuana in January and plays host March 1 to visitors. Here Andy Kirinich (W6OME) of Astro listens in as Jose Gonzalez (XE2NB) sends.

Tijuana Radio Hams to Return Visit With Astro Club March 1

Language is no barrier when interests are the same. This has become evident to Astro Radio Club members who are in the midst of their own version of "hands across the border" friendship.

Twenty-five Astro "hams" traveled to Tijuana Jan. 27 to visit the Tijuana Radio Club. Tomorrow (March 1) the Tijuana club will return the visit, taking part in a 7:30 p.m. meeting at ARA Clubhouse.

"While we could not talk to every member of the Tijuana club, we found it was possible to make ourselves understood through our common interest," said Ed Dodero, ARA commissioner.

Saturday (March 3) the Astro Radio Club stages a "ham swap meet" from 10 a.m. to 4 p.m. in ARA Recreation Area. Operators are invited to bring out equipment they would like to swap. Each participant will provide his own lunch.

Four Divisions Sending Archers to Tourney

Bowmen from at least four General Dynamics divisions are expected to be on hand for the March 11 open "Arrow Shoot," sponsored by CRA Archery Club.

Archers from Pomona, Astronautics, Convair, and Electronics divisions of the corporation are invited to compete for the top-grade fiber glass arrows going as prizes in the first merchandise shoot. The competition takes the place of the annual CRA trophy shoot, said Al Phipps, CRA commissioner.

At least 100 archers are expected to register at shoot time at Balboa Park Field Range on the Sunday meet date. Registration will be from 8:30-9:30 a.m. Competition will start at 9:45 a.m.

A dozen arrows will go to adult winners in each class. Juniors and intermediates will be awarded trophies.

The shoot will consist of 56 targets, 28 field and 28 hunter. There will be 24 classes—five men's and five women's in both NFAA barebow and freestyle; boys and girls, 12 years and under; boys and girls, 13 to 15.

A blue NFAA classification card is a must, reminded Phipps. Otherwise, those without a card are placed in the top class.

"The shoot will end in plenty of time for competitors from out of town to be well on their way home before dark," he assured.

In other archery programming for the near future is finalization of an all-General Dynamics tourney, spearheaded by the CRA group. Phipps has so far received favorable replies to such a tournament from archers at GD/Pomona, GD/Fort Worth, GD/Convair, and GD/Electronics and GD/Telecommunication people located at San Diego and Rochester.

Firm details will be worked out as soon as weather conditions permit with start of tourney play some time this spring.

Industrial Nurses Install Officers

General Dynamics employees were installed as officers of the San Diego Industrial Nurses Association in ceremonies last month.

New president of the group is Mrs. Lorna Payne, GD/Convair; with Mrs. Lorene Miller, GD/Astro, vice president; and O. O. Bowles, GD/Astro, treasurer. Installing officer was Mrs. Helen Werdelman, GD/Convair.

League Volleyball To Begin in March

League volleyball for both Convair and Astro players begins in mid-March.

Teams will be accepted from both divisions and formed into leagues, said Pete Beyrer, CRA commissioner, who is heading arrangements for both Convair and Astro play.

Volleyball teams from both divisions should be registered with Beyrer, ext. 1245, Plant 1, GD/Convair, as soon as possible.

Astro players who wish to form an Astronautics varsity team are asked to contact George Voget, Plant 2, ext. 1331.

Modelers Reschedule Free-Flight Contest

Aeromodelers will have a chance at a repeat performance of their annual free-flight scale contest, originally set for mid-February on Hourglass Field.

Rain and wind blew out the flying portion of competition on Feb. 11, which followed Saturday night judging. So, the entire contest has been rescheduled for this coming weekend, March 3-4, said Gene Whigham, CRA commissioner.

Rockhounds Return With 'Wooden' Loot

Forty members of ARA Rockhounds returned from a weekend trip to Yuma Army Ordnance Test Station earlier this month with petrified wood specimens up to three feet in length and 18 inches in diameter.

The trip also netted samples of agate, jasper, and petrified palm wood as the main party split into smaller groups for side trips to Castle Dome and Ogilby.

'Goals For Americans' On Sale at Bargain

A limited number of paperback copies of "Goals for Americans" are still available at a special discount price at GD/Astro employee services outlets.

The $1 book is available for only 75 cents, and contains a complete report of the "President's Commission on National Goals," with a series of essays on vital national subjects.

ARA Stamp Club Fast-Growing

Fast-growing new ARA activity is the Astro Stamp Club which will hold the first of two meetings next month at 7:30 p.m., March 8 in ARA Clubhouse.

The group, open to employees and dependents—including young collectors—meets regularly the second and fourth Thursdays of each month. First of these sessions is reserved for trading, while an auction is held at the second meeting.

During the final February session last week, bidding was lively on 50 lots of stamps cataloging in excess of $300.

H. E. "Rocky" LaNois, ext. 2991, can supply additional information on the group's activities.

Road Riders Score High in Competition

Club high score trophy in the first San Diego County Road Riders Association competition of the year was captured by nine members of Astro Motors, ARA motorcycle club, earlier this month.

The contest was a time-distance run known as an "Enduro." It led cyclists over a grueling 200-mile course. Highest individual score achieved by an Astro Motors member was Commissioner Paul Shannon's 982 of a possible 1,000 points.

The contest earned Astro riders participation points toward both the county-wide "Rider of the Year" award, and the annual Astro Motors trophy.

'Show Time' Theme For Club Meeting

It will be "Show Time" March 14 when the GD/Astronautics Management Club gathers in the International Room of El Cortez Hotel.

Resources planning and control (Dept. 154), sponsoring department, promises a full evening of entertainment. Featured will be John Gentri as emcee and a bevy of local acts and talent, including a band, vocalist, dancers and others.

Special guests will include the 19 semi-finalists in the first ARA-sponsored contest to select a "Miss or Mrs. ARA." They were selected from a field of 113 candidates.

Astro Teen-Agers To Dance March 10

Astronautics teen-agers will gather at the ARA Clubhouse March 10 for a regular dance between 7:30 and 10:30 p.m., reports Commissioner John Hess.

Music will be provided by Del-Fi's Band. Members will be allowed to bring one guest.

ARA Team Captures City Bowling Title

An Astronautics Recreation Association representative team captained by Art King has captured team honors in the San Diego Bowling Association's City Tournament.

Competing in Class "A," the Astro five turned in team games of 1,005-971-972—2,948 to better the nearest rival by 30 pins.

Individual series scores included: Joe Nagy (625), Tony Zullo (648), Manny Di Giulio (541), Dan Chovan Jr. (553) and King (581).

ARA Calendar

(GD/Astronautics Recreation Association has some 45 activities in operation for employees. For information call ARA Headquarters, ext. 1111.)

★ ★ ★

ARCHAEOLOGY—Meeting tonight (Feb. 28) at 7:30 p.m., ARA Clubhouse. Guest speaker.

ASTRO LENS—Meeting 7:30 p.m., March 4, Photo Arts Bldg., Balboa Park. Instruction in basic lighting.

ASTRO NOTES—Choral group meets and rehearses at 7:30 p.m., Mondays, ARA Clubhouse.

BADMINTON — Entries now accepted for tournament, March 17. Call ARA Headquarters for information, registration.

BRIDGE — Meetings, play, every Thursday, 7:30 p.m., Barcelona Bridge Club, Fourth and Juniper.

DISCOUNT TICKETS — Employee services outlets have tickets to Circle Arts Theater's "Tea House of the August Moon" (March 4), at 20 per cent discount.

FISHING CLUB—Nomination of officers at meeting 7:30 p.m., March 5, ARA Clubhouse.

GARDEN CLUB — Meeting 7:30 p.m., March 7, Floral Bldg., Balboa Park. Demonstration and instruction in corsage making and flower arrangement.

HI-FI CLUB—Club for hi-fi fans and music lovers to meet 8 p.m., March 13, ARA Clubhouse. Group is now organizing.

RADIO CLUB — Meeting 7:30 p.m., tomorrow (March 1), ARA Clubhouse. Tijuana Radio Club members will be guests. Swap-meet is planned for March 3, 10 a.m. to 4 p.m.

ROCKHOUNDS — Business meeting 7:30 p.m., March 8, ARA Clubhouse.

SKIN DIVING—Meeting 7:30 March 6, ARA Clubhouse.

SQUARE DANCING — Beginners' class open for new registrants March 6 and 13. Group meets each Tuesday. Register at class session.

STAMP CLUB—Meeting and trading session 7:30 p.m., March 8, ARA Clubhouse.

TEEN-AGERS—Dance 7:30 to 10:30 p.m., March 10, ARA Clubhouse. One guest admitted with each member.

Archaeology Club Will Hear Curator

The meeting of ARA Archaeology Club at 7:30 p.m. today (Feb. 28) will feature Clark Brott, curator of Balboa Park's Museum of Man as guest speaker.

Brott's topic will be "Mexico-South Meets America-East." He will accompany his remarks with slides and a display of artifacts.

Also displayed at the meeting will be a large "olla" or water vessel recently recovered from an area considered by the group as a future excavation site.

'Hi-Fi Music Club' Forecast at Astro

An organizational meeting of a proposed ARA "Hi-Fi Music Club" will be held at ARA Clubhouse at 8 p.m. March 13.

Organizers foresee possibility of an audio room, tape-to-tape, record-to-tape and stereo cast-to-tape equipment facility as well as a library of hi-fi magazines and books, if sufficient interest is shown. On the March agenda will be a possible group trip to Los Angeles to visit a hi-fi exposition.

Contact Ben Lachance, ext. 2324, for specific details.

Discount Offered On Car Show Ducats

Discount tickets to the Custom Rod-O-Rama and Sportscar Show in Balboa Park's Electric Building March 1-4 are available at all GD/Astro employee services outlets.

Regular $1.50 tickets are offered for $1. Shirley Kuhn, Dept. 557, will serve as official hostess.

Bill Harwood Wins ARA Design Award

W. D. "Bill" Harwood of Dept. 130-0 has been named winner of the ARA-sponsored contest to select a suitable design for use by ARA in letterheads, club patches, etc.

Second place in the contest went to W. Y. Endow of Dept. 564-3, while Orlon F. Garrett of Dept. 322-7 took third.

Teen-Agers Place In Pistol Shooting

Two teen-agers, Fred Bunker, 15, and Ralph Jungk, 14, placed second in sharpshooter and marksman classses respectively in recent .22 Police Course matches held by ARA Pistol Club.

Master class honors went to Harold Sicard who scored 288 of a possible 300 points, while Roland Schneider fired 286. Angrim Carlson won expert class with 279, followed by Marguerite Slater with 272.

Bill Jungk led the sharpshooters with 273, and young Bunker fired 255, while marksman Joe Miller topped the Jungk youth's 230 with a 252.

Top contenders in a center fire match were Ralph Sanderlin, 268; Sicard, 257; and Schneider, 252.

Gross Wins in Two Astro Lens Classes

Gerhard Gross (Dept. 141-4) submitted winning entries in both black-and-white and color slide classes of ARA Astro Lens' first quarterly photo contest recently.

His black-and-white print won top honors in that class, while a slide entry placed third in color. Top color entry came from Nate Brewer (Dept. 782), with Joan Ainsworth (Dept. 561-3), second.

At its next meeting the camera club will receive instruction in basic photographic lighting techniques from Walter Harvey, La Jolla professional.

The meeting is slated for 7:30 p.m., March 4, in the Photo Arts Bldg., Balboa Park.

Flower Arranging On Club Program

Astro Garden Club members will cover a variety of subjects at 7:30 p.m., March 7 when they gather at the Floral Building, Balboa Park.

Special demonstrations and instructions will be given on flower arrangements and corsage making. Special interest will be focused on roses in anticipation of the Astro Rose Show slated for April 15. Orchids, roses and carnations will be used in demonstrations.

If enough people are interested, additional instruction sessions such as this will be scheduled, according to Everett Henderson, founder of the group.

Badminton Tourney Entries Welcomed

Registrations are now being accepted for ARA's fifth annual badminton tournament scheduled for 10:30 a.m., March 17 in Federal Building, Balboa Park.

ARA Commissioner Les Marr has announced plans for "A," "B" and "C" flights in both men's and women's doubles and singles, as well as mixed doubles. A special novice flight will be arranged if interest warrants.

Shuttlecocks for tournament play will be provided by ARA, and no entry fees will be charged. Enter as early as possible by calling Dee, ext. 1111.

700 Series Rolled By GD/Astro's Neff

Rolling with the Titans of the Astro Swing Shift league recently at Clairemont Bowl, Jim Neff put together one of the few 700 series noted this year in San Diego.

Neff rolled games of 233-243-243—719. He carries a 170 average.

BEAUTIES ALL—Candidates for ARA Queen are, from left: Juanita Lee Harris, Debbie Perella, Cynthia Kogen, Jere Roberts, Marie Hudson, Shirley Sams, Cydney Garrison, Shirley Kuhn, Phyllis Silva, Frances Aboline, Ailene Holderby, Diane Farley, Barbara Erb, Barbara Joy, Ingrid Leyrer, Marilyn Clark, Charlotte Pacheco, Barbara Tanner, Barbara Campbell. Jim Gavett took photo of semi-finalists from which ARA Queen will be picked March 28.

Astro Beauties Competing For Title of Queen

Nineteen semi-finalists for General Dynamics/Astronautics Recreation Association Queen Contest were selected recently from a field of 113 candidates.

Making the selections were members of AR-Aiders, in-plant group formed to assist ARA in conducting its recreational program for all employees. AR-Aiders met in ARA Clubhouse for a general indoctrination session and dinner.

The 19 semi-finalists and their departments are: Frances Aboline (563-1); Barbara Campbell (130-5); Marilyn Clark (549-0); Barbara Erb (250-2); Diane Farley (337-1); Cydney Garrison (170-2); Juanita Lee Harris (250-1); Ailene Holderby (321-3); Nellie Marie Hudson (333-1); Barbara Joy (154-2); Cynthia Kogen (337-2); Shirley Kuhn (557-0); Ingrid Leyrer (581-0); Charlotte Pacheco (337-8); Debbie Perella (521-7); Jere Roberts (130-5); Shirley Sams (101-0); Phyllis Jean Silva (337-2); and Barbara Tanner (602-0).

The girls will take part in an ARA-sponsored fashion show March 28. A panel of judges from outside Astronautics will select one who will be crowned "Miss or Mrs. ARA" as a climax of the show.

The winner and her court will receive prizes, as will the nominator of the winning candidate.

Originally, 15 semi-finalists were to be selected. However, those judging the preliminary contest cast an equal number of votes for five candidates, so semi-finalists were increased to 19.

Fish Club Officers Will Be Nominated

New officers for ARA Fishing Club will be nominated March 5 at a 7:30 p.m. meeting planned for the ARA Clubhouse, according to ARA Commissioner T. B. Field.

Additional events will include drawings for three door prizes, presentation of awards for top monthly catches and the showing of a sports movie. Refreshments will be served.

During January the club passed out three fishing rods, one reel and one tackle box for prize catches.

Sports & Recreation

ORGANIZING—AR-Aiders met recently in ARA Clubhouse to vote on Queen candidates and organize. On stage is Bryan Weickersheimmer, co-commissioner, at microphone, with Marty Stutz, ARA vice president, Jack Boyle, president, Ray Mendoza, ARA rep, Gil Hutter, Aiders co-commissioner, Dixie Quesenberry, contest conductor.—Photo by Jim Gavett.

ARA Water Ski Boats Refitted; Members Divide Into Groups

A lively season promising more time on the water for more members was outlined recently at the first 1962 meeting of ARA Water Ski Club.

During the two-month winter break in the skiing season, both the club's boats have been refurbished and are ready to take to the water for another 10-month round of activity.

During 1961, club membership climbed to 70. This severely restricted the amount of tow-time available to individual skiers under last year's arrangement of weekend ski parties.

During the coming season, members will be assigned to groups of four to eight. The groups may then reserve the boats for four-hour periods both on weekends and during the week.

"We feel this arrangement will give more people a better chance," said Bill Johnson, ARA commissioner.

As with other ARA activities, all GD/Astronautics employees and members of their families are eligible to participate in the Water Ski Club. Because of considerable interest in the group, however, it has been necessary to limit use of facilities to registered members. Dues of $10 per year are charged.

The group owns two boats rigged for skiing. One is a wooden-hulled 18-foot inboard. A new 16-foot fiber glass outboard with 75 horsepower motor was acquired last year.

In addition to skiing on Mission Bay, the club also schedules trips to other water sports areas in the vicinity. Instruction for beginning skiers is also planned.

Trio Nominated For ARA 1961 'Award of Year'

It's election time again for GD/Astronautics Recreation Association.

Three candidates for ARA's annual "Award of the Year" and two candidates each for three of the four elective ARA offices were nominated at the Feb. 19 meeting of ARA Employees' Council.

Council members will vote during March. New officers will be installed in April. Announcement of the winner of the "Award of the Year" will be made at a later date.

The annual award is given in recognition of outstanding contributions to Astro's overall recreation program during the past year. Named as candidates this year are: Marty Stutz of Dept. 452-0, who serves as commissioner of the Astro Nauts, square dance group; J. D. Jones of Dept. 756, who has been a major factor in completion of ARA Clubhouse through voluntary help; and Larry Beaver of Dept. 152-0, commissioner of ARA Explorers' Club.

A nominating committee, headed by Ray Mendoza, made recommendations to the Council. Nominations were also accepted from the floor.

Bryan Weickersheimmer (Dept. 130-0), **General Dynamics NEWS** editor at Astro, was the lone presidential nominee after Jack Boyle, current ARA president, declined a nomination from the floor for a second term. Weickersheimmer has served the past two years as ARA secretary, is ballroom dancing commissioner and was recently named co-commissioner of AR-Aiders.

Candidates for vice president are Ezra Johnson (Dept. 401-4) and Bill Geopfarth (Dept. 547-3). Johnson is Gun Club commissioner and served as vice president in 1959-60. Geopfarth is Pistol Club commissioner and is now treasurer of ARA.

Running for treasurer will be Joe Garside (Dept. 597-5) and Marty Stutz (Dept. 452-0). Garside is commissioner of Astro Coineers. Stutz, ARA vice president, is commissioner of Astro Nauts (square dancers).

Buster Carlson (Dept. 594-0) and Ken Rinker (Dept. 145) are candidates for secretary. Carlson heads the popular ARA Band and Rinker is commissioner of Astro Lens, camera group.

Square Dancing Class to Close

Only two more sessions remain for GD/Astro employees and dependents to enter ARA Astro Nauts' new series of square dance lessons for beginners.

The current series opened Tuesday (Feb. 27) and registrations will be accepted at the next two meetings on March 6 and 13. Classes are held from 8 to 10 p.m. each Tuesday in ARA Clubhouse.

Astro Nauts open participation in group activities to beginners —those who have never danced before—only twice each year. At the conclusion of the current series, classes will close until autumn.

Lessons are conducted by veteran square dance instructors Dot and Van Vander Walker, at a cost of 50 cents per person per session. Basic instruction continues over a 16 to 20-week period and takes students from the simplest steps through the most intricate.

At the outset, records provide music for instruction, with "live" bands introduced later in the series.

ARA Commissioner Marty Stutz has said special parties also will be scheduled from time to time.

Speech Contest Ends For Toastmistresses

The annual speech contest of Delta Toastmistress Club ended Feb. 13 with Catherine Whelan judged best speaker.

She will compete with other club winners at the West area level March 9.

Others taking part in club competition were Lee Betts, wife of Lester Betts, GD/Convair Dept. 4-0; Carolyn Boles, and Cleo Fletcher. Virginia Reynolds of GD/Astronautics Dept. 592-2 is speech contest chairman.

Delta Toastmistresses meet regularly the second and fourth Tuesdays in the Convair executive dining room at 7:30 p.m. Any General Dynamics women interested are invited to attend.

Further information may be obtained from Delta president, Martha Woodberry, ext. 1245, GD/Convair Plant 1.

WARMING UP—In preparation for opening Astro ARA Water Ski Club season club president Jack Wachalec and ARA Commissioner Bill Johnson demonstrate tricky cross-over maneuver on Mission Bay. At left, Wachalec lifts tow rope as Johnson approaches. Center, it's down and under for Johnson, who emerges on other side in photo at right. Regular water skiing schedules for both Astro and Convair clubs will start within few weeks.

CLOUD HOPPING—Bob Runnalls of GD/Convair snapped spectacular shots of Swiss Alps, and Matterhorn, with 35mm. camera from Swissair 880-M en route from Hong Kong on leg of 30,000-mile tour checking performance of Convair jetliners in service. Center photo shows Swissair plane being fueled on let-down at Geneva.

Convair Jet 880-Ms Prove Gluttons For Work on Routes Around Globe

Convair 880-Ms are proving the workhorses of the Oriental and European airlines using them since last summer over wide-flung routes extending from mid-Europe to Far Eastern points.

"They all like the Convair 880-M and are extremely pleased with its reliability," reported R. L. Runnalls, General Dynamics/Convair airline performance engineer, after 30,000 miles round the world surveying 880-M operators.

Japan Air Lines is flying three of the Convair jetliners from Tokyo on its Southeast Asia routes. Civil Air Transport of Formosa was first airline to put an 880-M into passenger service in mid-summer of last year. CAT's 880-M flies routes connecting Korea, Japan, Okinawa, Taiwan, Hong Kong, and Thailand.

Swissair has had two 880-Ms flying from Zurich and Geneva to the Middle East and Far East since late last summer. The Convair planes have been doing yeoman service, each flying the thousands of miles from Switzerland across almost half the world to Bangkok and Hong Kong and return.

Other airlines now operating 880-Ms are Viasa of Venezuela, Alaska Air Lines, and Federal Aviation Agency. Cathay Pacific Airlines of Hong Kong expects to put an 880-M into service this spring.

"Crew praise for the 880-M was extremely flattering!" said Runnalls. "And reliability record is gratifying.

"For instance, CAT has marked up one stretch of five weeks of non-mechanical delayed flying."

CAT maintenance of its 880-M must be considered a prime factor in their delay-free operations, he continued.

"I was impressed with the drive, general attitude, and even ingenuity, of CAT personnel in this one-jet airline.

"CAT advertising of their 'Mandarin Jet' is more thorough than the most ambitious American Madison Avenue types could ever conceive. Posters proclaiming the 'Oriental Palace Luxury' of the CAT Convair are found in places that would challenge the ingenuity of a seasoned American circus billboard expert! Once aboard, a passenger finds the palace promise fulfilled as he is attended by four Chinese 'queens,' usually called stewardesses."

Japan Air Lines engineering and operations personnel welcomed the visit of Runnalls and the General Electric Co. representative, Ed Uhler, who accompanied him to Orient ports of call. During his customer contacts, Runnalls rides jump seat to observe Convair craft in actual operation; furnishes updated technical information; gathers data on flight characteristics and performance, together with customer reaction.

"JAL people were most cooperative and gave invaluable assistance during our stay in Tokyo," he said. "Japan Air Lines' load factors on the 880-M are excellent."

Cargo as well as passengers is big business in the Orient, observed Runnalls.

"The variety of cargo is unbelievable. Stacks of gold bars (unwrapped and unboxed) are seen neatly piled on the tarmac near the bin doors as well as melons, crates of fruit, jugs of sake.

"I understand that passenger loads are restricted at times due to full maximum weight high priority cargo loads on long-range flights."

One enterprising Oriental charter airline has even given up on passengers altogether to fly goldfish from Hong Kong to the outside world!

After stops at Tokyo and Taiwan, Runnalls flew to Hong Kong where he contacted Cathay Pacific Airlines officials before the big swing across to Switzerland via 880-M.

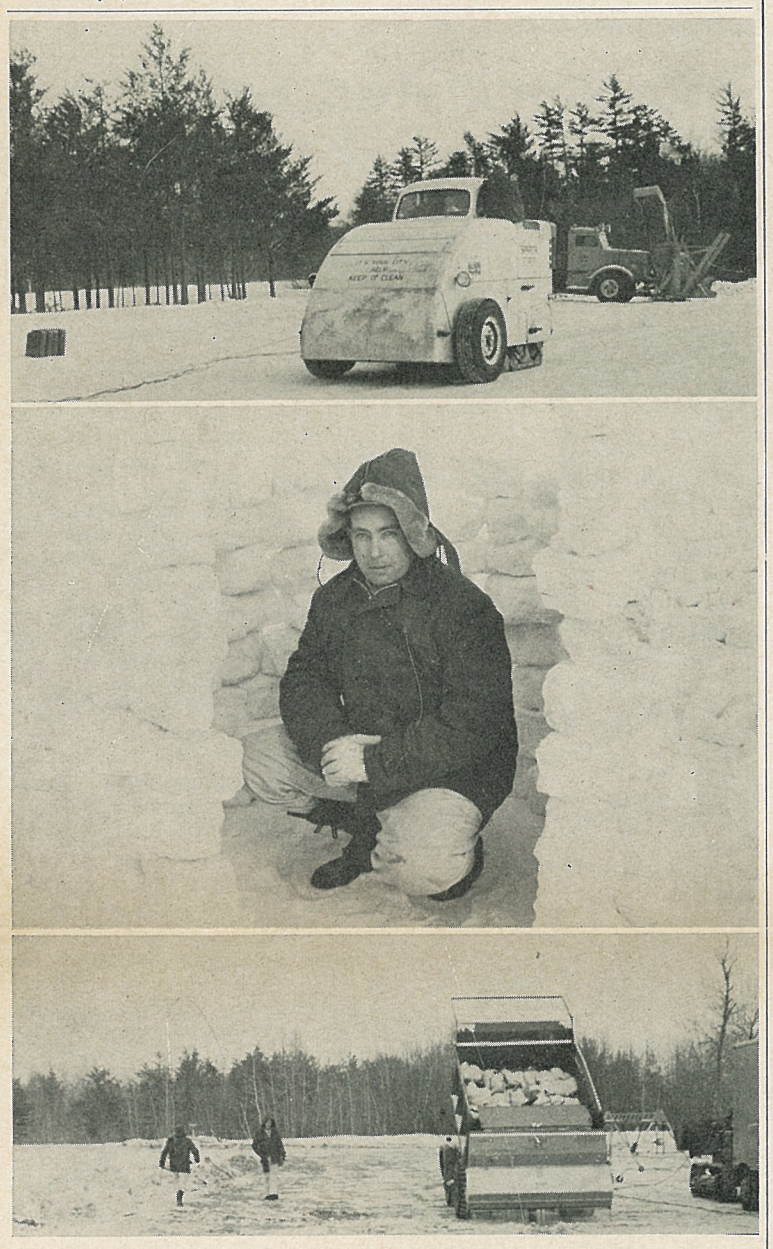
"The flight to Zurich aboard a Swissair 880-M was uneventful and not too productive for data acquisition due to night flying and rough air. However, flight crew endorsements echoed other customer airline crew statements.

"I am convinced that Swissair engineering is unchallenged in the field of operational performance review and control."

He summarized his findings, "High point of the trip was undoubtedly the excellent reliability record being established by the 880-M around the world."

Last customer contact was with Trans World Airlines in Kansas City before heading back to the West Coast.

He has since surveyed Alaska Airlines operations, flying on scheduled 880-M runs from Seattle to Anchorage and Fairbanks in 26 degrees below zero weather. The Seattle airline is expecting a booming upswing in jet travel to Alaska during months of the Seattle World Fair. In May it will begin two round trips a day to Alaska



CLEAN SWEEP—Street cleaner, top, employs mechanical sweeper to go over strip strewn with radioactive fallout sand. It was one of several fallout techniques U. S. Army troops used in exercises at Camp McCoy, Wis. During lull, Bill Bryant, GD/FW health physicist, dodges frigid wind in improvised igloo.

GD/FW Experts Complete Decontamination Tests

U. S. Army troops, assisted by General Dynamics/Fort Worth engineers and health physicists, completed a series of radiation decontamination exercises at Camp McCoy, Wis., in February, two-and-one-half weeks ahead of schedule.

Test results were apparently "very successful," according to Eldon Brooks, GD/FW testing analyst, one of the first to return.

"A few of our people will stay on through February to make certain the camp is ready to turn back over to the Army," Brooks said.

Camp McCoy is an inactive Army base used in summer months as a training site for reservists.

Brooks said weather conditions varied from 36 degrees below zero to 54 degrees.

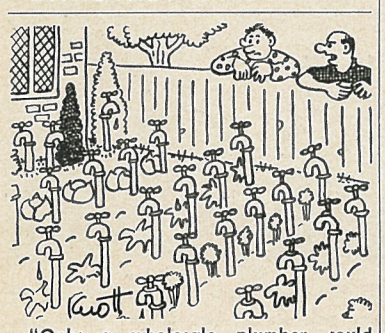
"During the coldest siege, we had five straight days of below-zero temperatures," he said, "but well-insulated clothing, heavy parkas and a lot of activity kept us reasonably warm."

GD/Fort Worth nuclear engineers and physicists provided health physics and radiological safety services, technical measurements, disposition of residual contamination, and data reduction for the experiments.

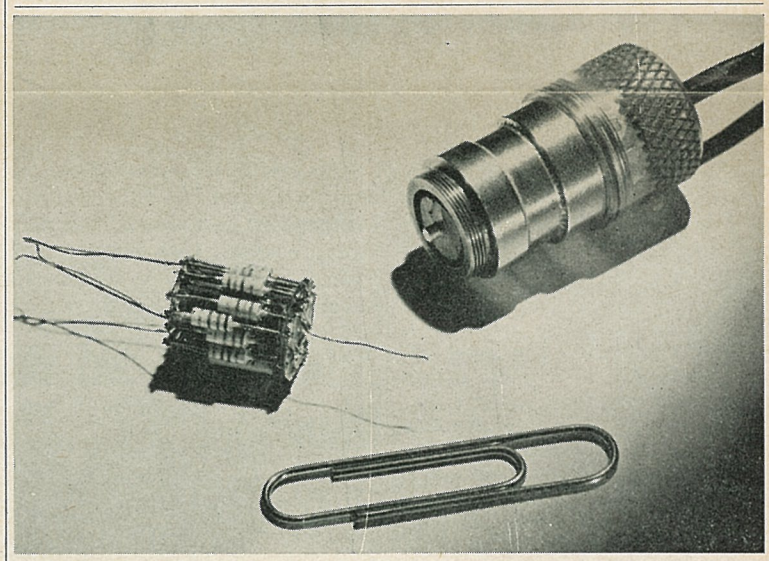
Army troops tested effectiveness of a number of devices including fire hose, mechanized blade scraper and vacuum sweeper—to clear areas and buildings of a fallout simulant.

The simulant was radioactive sand containing about 1/10,000 the radiation that would result from actual nuclear explosion, according to Frank Paschal, health physics administrator at GD/FW.

Included in the GD/Fort Worth team were: W. H. Heneveld, senior nuclear engineer in charge; C. C. Kilmer, engineering chemist; Charles H. Fletcher, design specialist; H. G. Bradbury, senior nuclear engineer; and J. Barnard, nuclear engineer. Health physicists were W. R. Miller and H. W. Bryant.



"Only a wholesale plumber could afford it."



MIGHTY MIKE—Size of GD/Pomona's new subminiature microphone pre-amplifier, left, is emphasized by comparison with one-inch paper clip. At right is cylindrical tube in which pre-amplifier is packaged. It is small enough for installation in today's most compact missiles.

New Midget Microphone Monitors Missile Noise

A subminiature, high-impedance microphone pre-amplifier, small enough for installation in today's most compact missiles, has been developed at General Dynamics/Pomona.

Size reduction of this transistorized unit is about 20 to 1 compared with the latest American product and 4 to 1 compared with the smallest European device. The decrease in size is accompanied by a corresponding decrease in weight.

The microphone pre-amplifier's size and weight are especially suitable for military applications. Until development of the new product by GD/Pomona engineering package laboratory, size factors precluded installation of standard models in the more compact missiles.

The pre-amplifier's primary purpose in the military field is to monitor acoustical noise during missile flight tests. This high-level noise—particular types of resonance caused by severe flight maneuvers—indicates possible electronic or structural failures.

The unit is completely encapsulated after assembly, making it virtually impervious to the effects of normal shock, acceleration, vibration and temperature.

Commercial applications for the microphone pre-amplifier exceed those of any standard military type. The extremely small size could make its use particularly attractive for certain forms of entertainment. For instance, it could be unobtrusively employed with a lapel microphone for television, radio and public speaking.

Total package volume is less than 0.25 cubic inch. Weight, including a 14-inch output cable, is only 15 grams.

The cylindrical tube in which the pre-amplifier is packaged is less than one-half inch in diameter and about an inch long. One end of the tube is externally threaded to receive a commercially available capacitance microphone cartridge. Leads for output, power supply and microphone bias are extended from the end opposite the microphone cartridge.

DAILY ROUND—Camera follows J. F. Cooper, plant appearance program coordinator, on daily round of Plant 71 and materials building at San Diego. At left he is in definite "trouble area" with sloppily stacked IBM cards, a packing case blocking aisle. This contrasts to left center where materials are neatly stored, with none protruding. In right center Cooper finds poorly positioned materials in storage yard, both unsightly and unsafe. At right with W. R. Leonard, supervisor, Cooper checks office area. Four departments have won first awards in new plant appearance contest administered by safety section.

GD

ASTRONAUTICS EDITION

GENERAL DYNAMICS

NEWS

Vol. 15, No. 6 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, March 14, 1962

FIRST WINNERS—Receiving from President J. R. Dempsey award plaques for department display in GD/Astro's first plant appearance contest are R. G. Carman, left, lab areas; W. T. Herchold, production areas; E. G. Callard, office areas; and S. L. Shipstead, crib storage and warehouse areas.

First Awards Presented For Plant Appearance

Four awards, first in General Dynamics/Astronautics' recently instituted plant appearance contest, were presented to representatives of winning departments by President J. R. Dempsey at his February management meeting.

Accepting honors on their departments' behalf were R. G. Carman, engineering test support (lab areas); W. T. Herchold, machine shop (production areas); E. G. Callard, quality assurance (office areas); and S. L. Shipstead, production control (crib storage and warehouse areas).

The program was begun in January at the request of GD/Astronautics management. Recent awards were for the first judging period which ended Feb. 15.

Successful operation of the program rests squarely on the shoulders of supervision. In each area a supervisor has been briefed in the program's operation, and accompanies a safety engineer during monthly checks.

Detailed inspection standards for each contest category—labs, offices, production, and warehouse and crib storage — have been established for use both in maintaining area appearance, and during periodic inspections.

GD/Astro safety section (Dept. 130-8) headed by J. W. Garrison, chief safety engineer, administers the program. Safety Engineer J. H. Cooper is program coordinator, covering more than 169 individually defined areas at Plant 71 and the material building (92).

"Through the program we hope to help employees view their work areas objectively; to see them through the eyes of a visitor," Garrison explained.

"Attention to plant appearance not only provides more pleasant working conditions, but has a direct effect on operating efficiency," he added. "Certainly, the nature of our business demands close attention to cleanliness in all phases of its operation."

Cooper has noted considerable improvement in appearance throughout the plant since the program began.

"Cooperation of supervision has been excellent," he said. "In one area, a trial inspection before the contest opened noted 1,400 discrepancies, while on my most recent visit it made a perfect score!"

Arriving unannounced to inspect an area, Cooper seeks out the responsible supervisor, who accompanies him as they go through the program check list, point by point.

Cooper, a "diplomat with a clipboard," meticulously explains all problems noted.

"Despite interest in improving an area, it is difficult for anyone to act on a problem unless

(Continued on Page 2)

Concern For Safety Praised by Dempsey

J. R. Dempsey, GD/Astronautics president, commented on the record:

"Astronautics' second consecutive safety record represents successful efforts by all our employees.

"Each time one serious injury is prevented, all this effort is rewarded. Safety ratings are meaningful only in that they represent our collective concern for human welfare."

For Second Straight Year GD/Astro Wins Nation's Highest Honors in Safety

For the second straight year General Dynamics/Astronautics employees have earned the nation's highest safety honors.

National Safety Council (NSC) ratings for 1961 show that Astronautics ranked first among the 18 largest airframe manufacturing firms in the nation. These firms constitute Group "A" in NSC's reporting system and represent industries that worked more than four million manhours during the first quarter of 1961.

GD/Pomona ranked third in this group, behind Martin Co.

Ratings are based on the total number of lost-time accidents occurring for each million manhours worked. The average for all 70 firms grouped in airframe manufacturing was 1.48 lost-time accidents for each million manhours worked. The Group "A" average was 1.34.

GD/Astro had a .43 rating!

The 1961 safety laurels mark a continuation of an outstanding safety record for Astro. Although a relatively "young" firm in comparison to most airframe manufacturing firms, Astro has never dropped below third place in national ratings.

Astro stepped into national competition first in 1957, ending the year in second place behind GD/Convair. In 1958 GD/Pomona, GD/Convair and GD/Astronautics finished in that order nationally. Astro also took third in 1959, just below GD/Convair in second place. The positions switched in 1960 with Astro winning its first top spot and GD/Convair taking second.

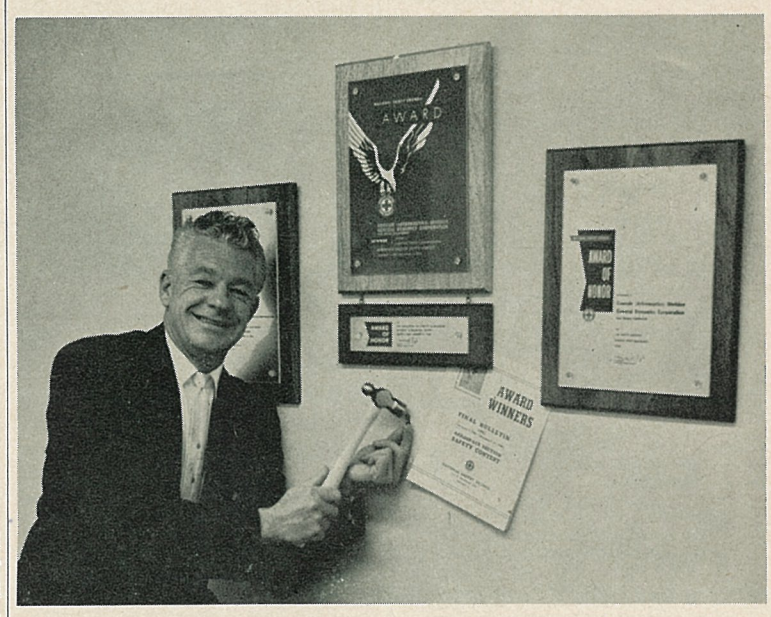
Considering the many factors involved, the record of Astro employees in safety has been outstanding. For instance, few of the competing firms operated both major plants and multiple test and operational bases. Astro did and still does, with records reflecting the efforts of all employees, not just those at the main plant in the San Diego area.

Growth has been another factor to overcome. In a steady build-up of employment through the years many employees have joined Astro who had never seen fabrication areas, missile test and operational installations. Yet each employee adapted quickly to conditions. Construction work was in progress at many missile sites when Astro employees began their tasks, adding to the potential hazards. Too, the last two years have marked the entry of work forces into silo installations where constant attention to safety was mandatory.

"Through the joint efforts of almost 33,000 employees we have reached a peak for safety consciousness and maintained it," said J. W. Garrison, chief safety engineer. "It is an accomplishment in which we can all share with equal pride."

Safety on the job boils down primarily to the efforts of individual employees, Garrison said.

However, a few warrant special attention for their efforts. Supervision on all levels fosters safety at all times. They are helped greatly through the collective and individual efforts of members of Workman's Safety Committees active at the main plant and every test and operational base.



MAKING READY—Jack Garrison, chief safety engineer at Astro, prepares space among safety plaques won by Astro for another. It will be similar to one in center marking Astro's first place position in nation for 1960 safety contest.

'Miss (or Mrs.) ARA' Will Be Named At Spring Style Show March 28

"Crowns and Gowns" will be the theme March 28 when Astronautics Recreation Association sponsors a spring fashion show beginning at 8 p.m. in the reception center (Bldg. 2) lobby.

Tickets at $1 each go on sale tomorrow (March 15) at all employee services outlets.

Highlighting ARA's annual spring show will be the selection and crowning of a "Miss or Mrs. ARA." Nineteen semi-finalists from a field of 113 candidates will act as models during the show. A panel of outside judges will select a queen and four princesses for special honors.

Air Force officials have been asked to perform crowning honors. The queen and her court will receive special tributes and loving cups. In addition, the sponsor of the queen will receive a special plaque. (Each candidate was sponsored by an employee in the contest.)

Worth's of El Cajon Blvd. will provide the fashions for the regular show which will include an assortment of spring apparel, ranging from cocktail dresses to leisure costumes.

Capacity of the Bldg. 2 lobby is 500 and tickets will be available on a first-come, first-served basis.

Door prizes will be presented and refreshments served in the cafeteria following the show.

Log Book Entries

Promotions

MAIN PLANT

Promotions to or within supervision effective Feb. 26.

Dept. 110-0, Contracts: To contract administrator, R. L. Smith.

Dept. 140-1, Reliability Control: To inspection supervisor, L. I. Fredrickson.

Dept. 141-2, Quality Control: To production control asst. supervisor, W. W. Wilimek.

Dept. 155-0, Estimating: To estimating asst. supervisor, F. L. Landgraf.

Dept. 223-1, Production Control: To asst. foreman, G. C. Mussen.

Dept. 250-1, Plant Engineering: To foreman, R. F. Missman.

Dept. 290-0, Applied Manufacturing Research and Process Development: To technical services asst. supervisor, V. H. Folsom.

Dept. 322-9, Support Publications: To support publications asst. supervisor, H. J. Sauer.

Dept. 333-2, Off-Site Logistics: To support logistics supervisor, E. C. Putts. To parts documentation asst. supervisor, F. P. Lukacs.

Dept. 401-1, Tool Planning: To tooling supervisor, I. G. Rooder.

Dept. 403-1, Tool Engineering Projects: To tooling supervisor, D. R. MacGregor. To tooling asst. supervisor, D. C. Basore, A. J. Kent.

Dept. 521-2, Engineering Administration: To engineering task control asst. supervisor, R. C. Froeschle, L. R. Kinzel.

Dept. 539-3, Design Liaison: To design group engineer (AMR), P. F. Jackson, D. L. Olson. To activation engineering asst. supervisor-base (Schilling), L. D. Dion.

Dept. 591-1, Development: To research group engineer, J. W. Brummer.

Dept. 811-2, Procurement: To buying supervisor, M. A. Grove.

Dept. 850-0, Material Contracts and Services: To manager of material control and services, J. M. Hanley.

Dept. 860-0, Vendor Research and Value Analysis: To chief, vendor research and value analysis, T. A. Scott.

Dept. 954-0, Centaur Program Control: To estimating supervisor, S. S. Kuerbis.

Dept. 955-0, Centaur Program Control: To contract administrator, G. A. Lefebvre.

Dept. 961, Centaur Design Engineering: To design group engineer, A. P. Dudeck, F. C. Taylor, D. A. Heald. To asst. design group engineer, G. F. Dawson Jr.

Dept. 964-2, Centaur Design Engineering: To electronics group engineer, J. E. Fithian.

Dept. 965, Centaur Design Engineering: To design group engineer, K. R. Brown, R. E. Clauser.

Dept. 966, Centaur Design Engineering: To asst. research group engineer, F. B. Anthony Jr. To thermodynamics group engineer, J. C. Ballinger. To dynamics group engineer, R. P. Day. To electronics group engineer, A. Gelernter.

Dept. 967, Centaur Design Engineering: To dynamics group engineer, A. F. Leondis. To weight group engineer, E. Koester. To structures group engineer, A. C. Ward.

Dept. 970, Centaur Manufacturing Operations: To production control foreman, W. J. Robinson. To production control asst. foreman, R. W. Ramsey.

Dept. 971-0, Centaur Manufacturing Operations: To tooling supervisor, A. J. Kunde, G. J. Bourke Jr.

Dept. 972-0, Centaur Manufacturing Operations: To foreman, R. H. Trussell.

ALTUS AFB

Dept. 617, GD/Astronautics Operations: To safety supervisor-base, T. A. Naughton.

DYESS AFB

Dept. 618, GD/Astronautics Operations: To launch complex asst. supervisor, J. D. Roberts. To asst. foreman, H. L. Adams, G. G. Bagrie, J. H. Brooks, L. W. Bushnell, E. E. Harned, J. A. Mohamed, R. H. Poer, W. J. Thielman, C. O. Byarlay.

LINCOLN AFB

Dept. 616, GD/Astronautics Operations: To launch complex asst. supervisor, J. E. Nicholson.

PLATTSBURGH AFB

Dept. 620, GD/Astronautics Operations: To chief of scheduling and analysis-base, T. M. Gammage. To asst. foreman, E. J. Oliwa. To inspection asst. supervisor, R. A. Randolph. To production control asst. foreman, R. T. Rowe.

SCHILLING AFB

Dept. 615, GD/Astronautics Operations: To asst foreman, A. J. Cantrell, E. F. Reniszewski.

WALKER AFB

Dept. 619, GD/Astronautics Operations: To chief of cost control-base, M. E. Post. To launch complex supervisor, R. A. Houghton. To cost control supervisor, N. E. Crabtree. To production control supervisor, J. P. Gamache Jr. To office services asst. supervisor, J. A. Leger. To timekeeping asst. supervisor, A. F. Sanger. To asst. foreman, J. A. Hammett, J. T. Johnson, D. E. Palmer, O. P. Ray.

Personals

ALTUS AFB

Our heartfelt thanks to all extending sympathy and help in our recent sorrow. For the beautiful services, floral offerings, and other kindnesses, we are deeply grateful.

The W. C. Weir family.

Service Emblems

MAIN PLANT

Service emblems due during the period March 1 through March 15.

Twenty-year: Dept. 300-0, A. H. Gross; Dept. 344-0, W. J. Cushman; Dept. 402-1, J. G. Sewell; Dept. 451-0, J. E. Casner; Dept. 545-2, S. C. Danos; Dept. 600-0, K. E. O'Neil.

Fifteen-year: Dept. 130-6, Elma B. Buchanan; Dept. 193-3, W. H. Simms; Dept. 332-1, Raymond Arnold; Dept. 343, J. C. Fox, D. E. Mansfield; Dept. 404-0, L. W. Penergrass; Dept. 551-4, C. W. Kushera.

Ten-year: Dept. 154-1, S. N. Versus; Dept. 170, E. R. Zevin Jr.; Dept. 222-2, Rosa Maria Lujan; Dept. 223-1, Alice L. Inscore; Dept. 403-2, C. G. Kickbush Jr.; Dept. 404-0, K. A. Waid; Dept. 461-0, A. D. Godfrey; Dept. 531-3, J. F. Tweed; Dept. 561-1, A. J. Woodington; Dept. 567-6, Melba B. Hart.

Dept. 608-0, L. F. Lau; Dept. 732-0, R. H. Morley; Dept. 756-0, W. C. Oliver, H. M. Urbach; Dept. 758-0, O. A. Smith; Dept. 759-0, L. E. McGhee; Dept. 773-0, Marvin Bates Jr.; Dept. 781-0, Violet C. Carriker, E. J. Russell.

EDWARDS RS

Twenty-year: Dept. 575-0, G. A. Johnson.

Ten-year: Dept. 575-3, S. M. Penrod.

LINCOLN AFB

Twenty-year: Dept. 616-0, B. E. Shultz.

Ten-year: Dept. 616, G. F. Maclean, J. H. Walk.

SCHILLING AFB

Twenty-year: Dept. 615-9, G. W. Couch.

Fifteen-year: Dept. 615-7, L. T. Zink.

SHEPPARD AFB

Ten-year: Dept. 328-0, H. V. Wilder.

SYCAMORE

Ten-year: Dept. 573-1, C. O. Bennett.

Births

MAIN PLANT

SMITH—Son, Jeffrey Christopher, 8 lbs., 7 oz., born Nov. 10, 1961, to Mr. and Mrs. R. E. Smith, Dept. 344-2.

WALZ—Son, Mark Louis, 5 lbs., 1 oz., born Feb. 16 to Mr. and Mrs. J. A. Walz, Dept. 561-2.

Deaths

MAIN PLANT

HEINZE—Reinhold H., Dept. 344-2. Died Feb. 22. Survived by wife, Mae, and two children.

MAY—Floyd M., Dept. 782. Died March 2. Survived by son, Floyd Jr.

SCHOLEFIELD—Kenneth J., Dept. 825. Died Feb. 28. Survived by wife, Lillian, and two children.

ALTUS AFB

WEIR—Warren C., Dept. 617-2. Died Feb. 25. Survived by wife, Leatha.

Archaeologists Slate Indian Discussion

A discussion of San Diego County Indians by James Moriarty, Scripps Institution of Oceanography, will highlight the meeting of ARA Archaeology Club at 7:30 p.m., March 29 in the ARA Clubhouse.

The meeting is scheduled for Thursday instead of the usual Wednesday date to accommodate the speaker's schedule.

In a field operation early this month the club surveyed an old Indian site south of Jacumba, which proved rich in artifacts. One "find" included a number of bedrock metates (grinding depressions carved in large stones) with pestles (grinding tools) still in place.

Burst Water Pipe 'Blows Up' Photos

General Dynamics/Astronautics photographers at off-site bases were asked to shoot feature photos of local people during the Atlas-boosted Mercury orbital flight.

John Oldenkamp of Plattsburgh AFB justified his limited response with:

"You won't believe this, but at the exact moment Col. Glenn and his wonderous flying machine were thundering aloft I was in the dark room with both hands wrapped around a burst water pipe, hanging on for dear life until a plumber could be summoned."

General Dynamics NEWS

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Hustler Sets World Marks For Speed

A Carswell AFB B-58 Hustler dashed across the United States and back in 4 hours, 42 minutes March 5, slashing three world speed records and netting high honors for the SAC crew.

Gen. Thomas S. Power, chief of SAC, presented Distinguished Flying Crosses to Capts. Robert G. Sowers, pilot, Robert McDonald, navigator, and John T. Walton, DSO, shortly after the plane touched down at Los Angeles' International Airport.

The crew is also expected to receive the Bendix Trophy following customary certification by Federation Aeronautique Internationale.

"Tall Man Five Five" was code name for the B-58 that averaged nearly 1,045 mph in bettering by over one-third the previous best round-trip time from Los Angeles to New York—a distance of nearly 5,000 miles.

Record times set by the Hustler, and previous marks, are:

West-to-east — 2 hours, 1½ minutes, with average speed of over 1,212 mph; previous best time, 2 hours, 48 minutes, averaging 871-plus mph in F4H-1 fighter-bomber.

East-to-west — 2 hours, 15 minutes, averaging over 1,091 mph; previous best time, 3 hours, 36 minutes, averaging over 677 mph in RF-101C Voodoo fighter.

Round trip LA to NY—4 hours, 42 minutes-plus, averaging 1,044 mph; previous record, 6 hours, 46 minutes, averaging 721-plus mph, in RF-101C Voodoo fighter.

Included in the round-trip time, though not reflected in either the west - to - east or east - to - west times, is a 25-minute refueling stint over the Atlantic before the Hustler started its dash back.

"Tall Man Five Five" crew had a pre-dawn briefing at Carswell AFB, cruised to the coast, and refueling over the Pacific before starting their historic cross-country dash.

Another crew flying "Tall Man Five Six" took off from Carswell 30 minutes after the first Hustler and completed the west-to-east leg in 2 hours, 56 seconds. As planned, the second Hustler, with a crew of Lt. Col. Bruce Groesbeck, pilot, Maj. Edward C. Dewey, navigator, and Capt. Joseph A. Bridewell, DSO, dropped out on the return leg, landing at a SAC base.

Most of the flight was at 50,000 feet, but the Hustler dipped down to 30,000 feet for starting, finishing and refueling.

"We were attempting to show what manned aircraft in general can do," said Sowers. "It was a great flight. Everybody did a fine job."

Frank W. Davis, GD/FW president, said:

"These speed records represent splendid teamwork by bomber and tanker crews of the Air Force's Strategic Air Command.

"The east-to-west leg of the flight marks the first time in history that an airplane has 'beaten the sun' across the United States.

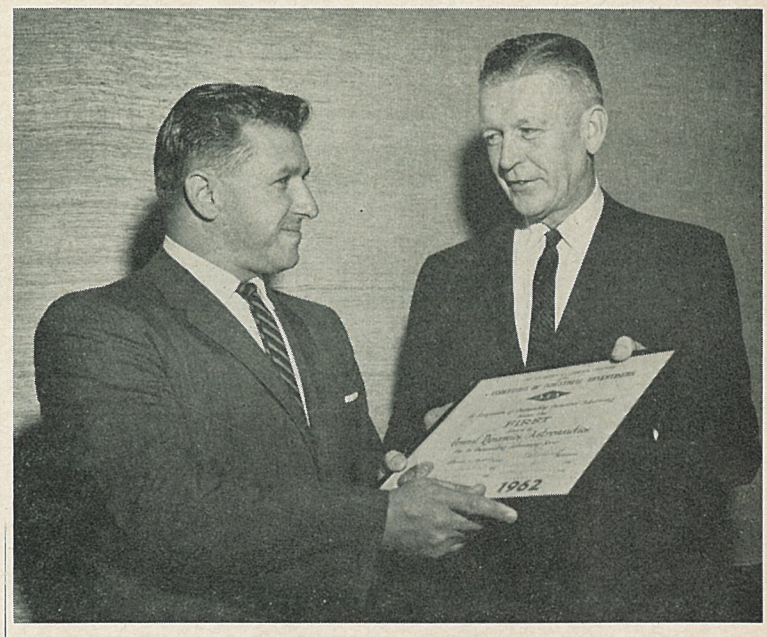
"Fort Worth can be justifiably proud of these new records, for the B-58 bomber was built here and the crew is based here.

"Naturally, we at General Dynamics Corporation are proud to have played a part in these speed records by designing and building the B-58 which set them.

"Perhaps the pride is pardonable in that rarely if ever in the history of aviation has a single airplane broken so many world speed and payload records in so short a time.

"The B-58 has now established 12 speed and payload records since January, 1961.

"In so doing, B-58 crews have earned the coveted Bleriot Trophy, and it is my understanding that today's B-58 crew may be awarded the Bendix Trophy."



ASTRO HONORED—First place award for outstanding recruitment advertising was won by GD/Astro in Southern California Chapter, Association of Industrial Advertisers, competition. Astro's Robert M. Smith, left, manager of industrial relations administration—engineering, accepts honors from James B. Lane, president of Barnes Chase Advertising agency, which handles Astro account.

First Awards Presented For Plant Appearance

(Continued from Page 1)

he believes it exists and understands it fully," he said.

Although walking an average of 21 miles each day on plant-wide inspection tours, Cooper is always ready to assist in problem correction. He works closely with the safety section in correcting hazards, and with plant engineering (Dept. 250) to provide maintenance and repair services.

"Departments unable to correct problems on their own can file a maintenance request with F. S. Perkins, Dept. 250-0. Painting, cleaning and preservation are always under way on a cyclical basis," he explained.

Cooper cautioned, however, that individual employees are the key to keeping up appearance in work areas.

In office areas, common problems are dirty and dusty furniture; unnecessary material—lunch bags, novelty signs, non-technical books—on desks; desks unaligned, or with drawers open when they are unattended.

Warehouse areas sometimes have unbanded materials, items stored in aisles, and broken or damaged pallets; while laboratories occasionally show a lack of tidiness and suffer from the "unnecessary article" problem.

"Production areas had a fine start in the contest because of their traditional consciousness of clutter in work areas. Good appearance in the factory has always gone hand-in-hand with safety," Cooper remarked.

"Goal of the program is to match the appearance of our work areas with the plant's physical attractiveness, and the quality and precision built into our products," he concluded.

"We are engaged in a serious and highly competitive business," added Garrison. "Each employee can help toward continued success by a conscientious effort in the plant appearance program."

GD/ASTRO DANCERS JOIN AF GROUPS At Plattsburgh AFB

PLATTSBURGH AFB — General Dynamics/Astronautics employees here have been invited to take part in square dance activities of the "North Country Squares," a group of SATAF and SAC dancers who welcome Atlas program participants here.

Bill Harvey, labor relations adviser to the SATAF commander, calls all numbers. Offices are shared jointly by husbands and wives. Donald and Sue Lawson are president; Roger and Joyce Theroux, vice president; Capt. and Mrs. Lee Seeds, treasurer.

Meetings are held the first and third Saturday night at the Catholic Daughter's Rooms, Plattsburgh. Harvey reports a new beginner's class will be organized, if enough GD/Astro employees are interested.

Square Dance Lessons To Close March 20

Registration for beginning square dance lessons sponsored by ARA Astro Nauts will remain open through the group's session at 8 p.m. March 20 in ARA Clubhouse.

Class participation now tops 40, but Commissioner Marty Stutz will welcome additional male members, as well as couples. Cost is 50 cents per person per class.

Instructors Dot and Van Vander Walker lead the group from the basic square dance steps through the most complicated maneuvers in the 16 to 20-week course.

NO. 216 AND 217—Robert W. Sherman (left) and Arnold R. Southard (right) were latest graduates (Nos. 217 and 216 respectively) from GD/Convair's four-year apprenticeship program when they received journeyman certificates last month from Steve Barinka, assistant factory manager. Southard was last aircraft and engine mechanic apprentice. Sherman first airframe and power plant mechanic as terminology changed. Both are stationed now at off-site Astro bases, Southard at Dyess AFB, Sherman at Plattsburgh.

Master Form Created (Glass and Plastic Foam) By Numerical Control

A new lightweight, compound-contoured master form with dimensional stability has been machined by numerical control at General Dynamics/Fort Worth.

Made of honeycomb and fiber glass panels, plastic foam and a solid plastic face, the form was machined by Dept. 81 in a Variax mill.

"To my knowledge, this is the first time a numerical controlled machine tool has been used to produce a contoured master form in three dimensions," said W. H. Drebing, senior tool engineer.

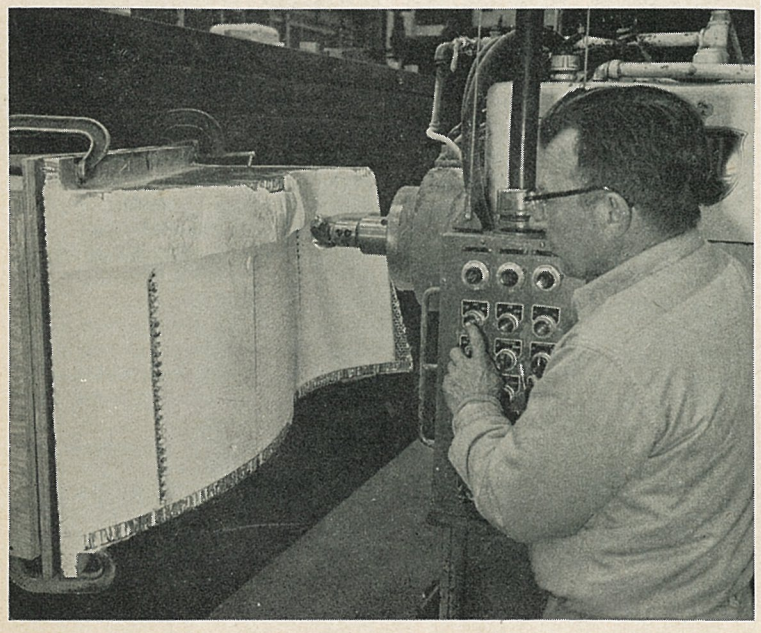
Dept. 23 (applied manufacturing research and development) is coordinating the project.

About 9,000 IBM punched cards directed the 7090 computer in making over 72 million computations (additions and subtractions) to produce the magnetic tape used to guide the milling machine in cutting the form to proper shape.

"The intricate nature of the form required a mathematical description of the contoured surface and careful programming," Drebing said.

"The new master form can be carried by two average men," he added, "while a conventional plaster form the same size ordinarily requires a fork lift."

J. T. Livengood, Dept. 6 lineman; Warren Watson, computing lab; Charles Hoffman, programmer, and B. L. Harrison, manufacturing research, were among those assisting in the project.

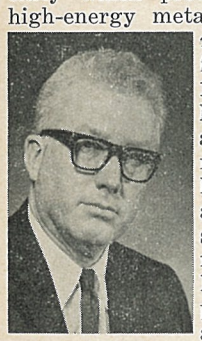


PRECISE—J. H. Russell, Dept. 81, monitors fabrication of new compound-contoured master form by numerical control.

Gallagher General Manager Of Advanced Products Dept.

In new appointments within the Advanced Products Department of General Dynamics at San Diego, M. J. Gallagher has been named general manager and W. G. Mang, general sales manager.

Both have been with the facility which produces Dynapak, high-energy metal forming machine, since its formation in 1958. Gallagher had been assistant general manager since last fall and acting head since the resignation of R. G. Monsees a couple of months ago.



M. J. Gallagher

He has had close contact with company operations since he first joined GD/Convair at San Diego in 1940. He was one of the first transferred to the Fort Worth division the following year. There he was outside tooling representative in charge of tooling on subcontracted items.

He joined Avco Manufacturing Corp., at that time parent company of Convair, in 1945 as assistant chief engineer. Later he transferred to the sales staff and was regional sales manager for the Western states when he left to return to General Dynamics in 1958.

At the Pomona location of first Dynapak operations, Gallagher organized first sales staff for the revolutionary product in his capacity as sales manager.

He came with the Advanced Products Department personnel when site of operations was transferred to San Diego early last year.

Mang joined initial Advanced Products operations as Eastern regional manager. He is now based at the San Diego headquarters in his new post.

A graduate of the University of Maryland, Mang holds a degree in mechanical engineering. He has taken an active part in the development of Dynapak, its advances, and acceptance in the metal-working field since it was first introduced to industry nearly four years ago. He is frequently called upon to speak before technical and industrial groups on high-energy rate forging.

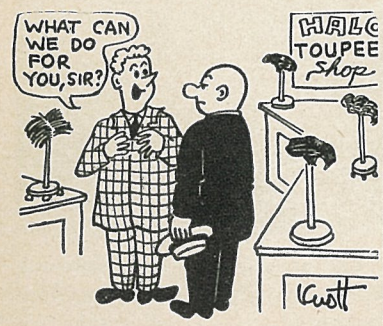
Gallagher foresees a good business year ahead for Advanced Products with the introduction of the new Dynapak models. At least 50 leading companies in the United States and abroad have installed and now are using Dynapak machines. Seven have been purchased by Japanese industries, one by an Austrian firm, others are due to go to Great Britain.

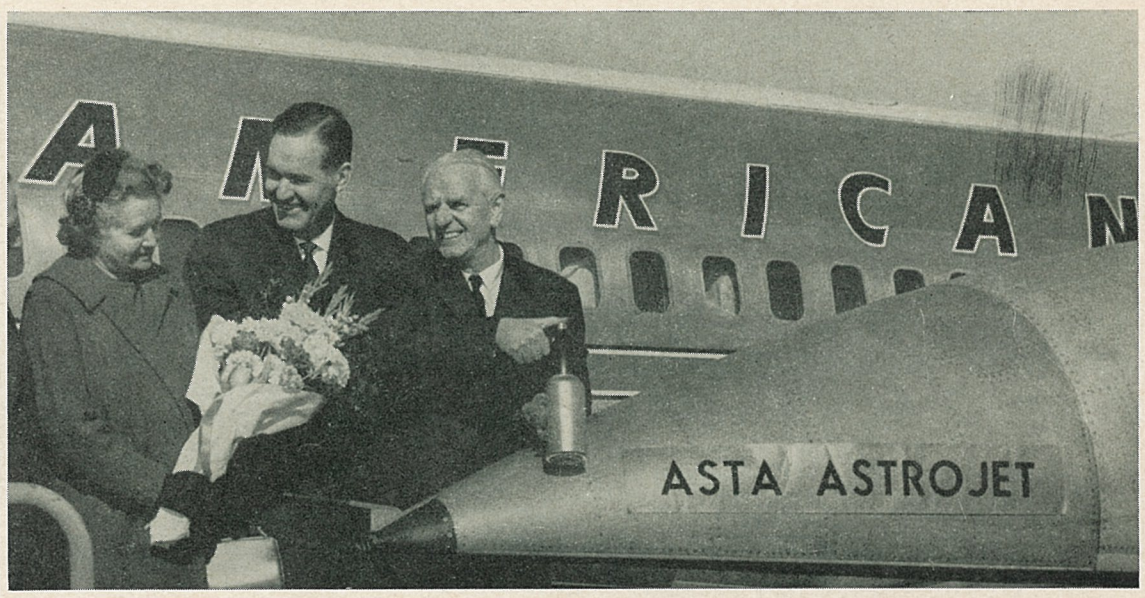
Gallagher reports directly to Paul Hickman, General Dynamics Corporation manager of new products, located at New York City.

Conference Called On Mental Health

Norman M. Molesko, General Dynamics/Astronautics human reliability requirements engineer, will be among members of the San Diego County Psychological Association staging a Mental Health Career conference this month.

To be held March 31 at Recital Hall, Balboa Park, San Diego, the affair will be for approximately 250 senior high school students interested in mental health careers in psychology.





CHRISTENED—Convair 990 going into service with American Airlines March 18 is christened "Asta Astrojet" by R. F. Kerr, president American Society of Travel Agents. Shown with him at New York International Airport ceremony are Mrs. Kerr and Richard L. Fitzpatrick, AA vice president of sales and services.

MANAGERS BRIEFED ON CAPABILITIES OF WESTERN DIVISIONS

New capabilities under development at General Dynamics divisions on the West Coast were displayed last month to first group of Corporate field office personnel under a new orientation program.

All of the 50 managers and representatives who man General Dynamics field offices throughout the United States and abroad will visit each of the corporation's 12 divisions in this country at least twice a year. During their tours they will be briefed on all existing programs and capabilities and brought up to date on new developments.

First contingent spent time at Convair, Astronautics, Electronics, General Atomic divisions in the San Diego area and went on to General Dynamics/Pomona during the five-day seminar, Feb. 19-23. They will visit East Coast locations and General Dynamics/Fort Worth at a later date.

Robert Whitfield, assistant to General Dynamics director of government relations at San Diego, coordinated arrangements.

Field office managers included in the group were: R. M. MacIver, Colorado Springs, Colo.; K. M. Campbell, Dayton, Ohio; J. J. Walden, San Antonio, Texas; E. R. Hinz, Los Angeles, Calif.; D. Rowland, Washington, D. C.; Lloyd Doling, manager of government relations-Navy, based at San Diego Corporate Office.

Others were F. R. Heyner, Cambridge, Mass.; W. J. Alspach, Dayton, Ohio; W. A. Roberts, Huntsville, Ala.; P. R. Hurley, Omaha, Neb.; R. L. Layburn and W. H. Campbell of Redbank, N. J.; W. F. Sailor, Rome, N. Y.; J. C. Henson, San Antonio, Texas; Grady Harrison, Geneva, Switzerland; J. H. Mason, Los Angeles; R. W. Menzel, F. F. deFrance, C. D. England, C. W. Sylvester, Washington, D. C.; C. E. Porter, Corporate Office at San Diego.

Cathay Pacific 880-M to Airlift 'Carpentry Shop' to Hong Kong

Cathay Pacific Airways Ltd. will airlift over a ton of woodworking machinery to the CARE mission in Hong Kong in its Convair 880-M ferry flight scheduled March 30.

The 2,600 lbs. of machinery will be flown to Hong Kong as part of the CARE (Cooperative for American Relief Everywhere, Inc.) self-help program. The shipment will include a band saw, wood lathe, bench saw, jointer, drill press, assorted hand tools.

Cathay Pacific took delivery on its Convair jet airliner late last month with J. H. Famme, General Dynamics/Convair president, turning over papers for the plane to Donald S. Delaney, Cathay Pacific representative.

W. C. G. Knowles, chairman of the airline, announced that 880-M passenger service would start in early April. Route stops will include Hong Kong, Tokyo, Bangkok, Singapore, Manila.

The plane will have a seating arrangement of 20 four-across, first-class seats and 74 five-across, economy class seats.

British pilots fly the airline's passenger and cargo runs throughout the Orient. Flight stewards are Chinese and bilingual in English and Chinese. Hostesses are Indian, Chinese, Japanese, Portuguese, and Korean girls.

CARE CREW — Cathay Pacific pilots J. F. C. Carrington and A. B. Armstrong survey part of 2,600-lb. load of machinery for CARE to be ferried to Hong Kong aboard Cathay Pacific's 880-M last of March. Girls are Beverly Witchner, CARE representative, and Kathy Saiato of Cathay sales office in San Francisco.

Australia Hails Glenn's Orbit

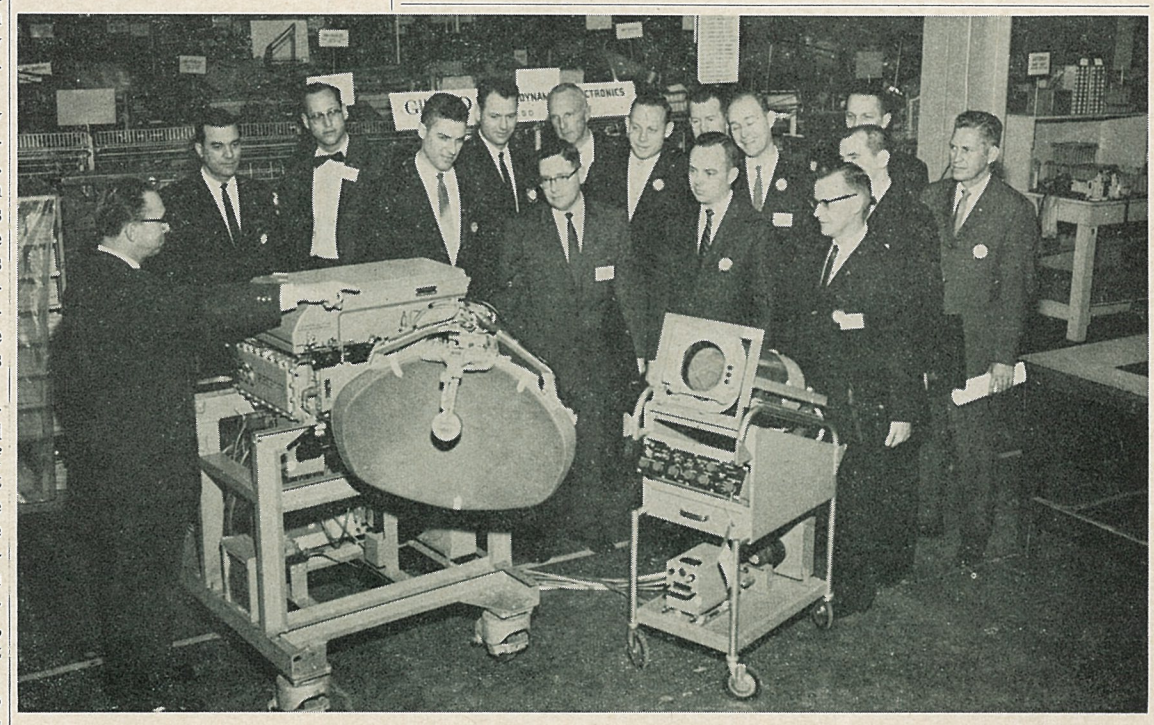
The flight of Astronaut John Glenn's Atlas-boosted "Friendship 7" Mercury spacecraft was the biggest thing to happen in Australia since the end of World War II.

This was the opinion of Astronautics' Ted Schroeder who was "down under" on company business at the time of the flight. Schroeder was in Randwick (near Sydney) and stayed up all night to follow progress of the flight.

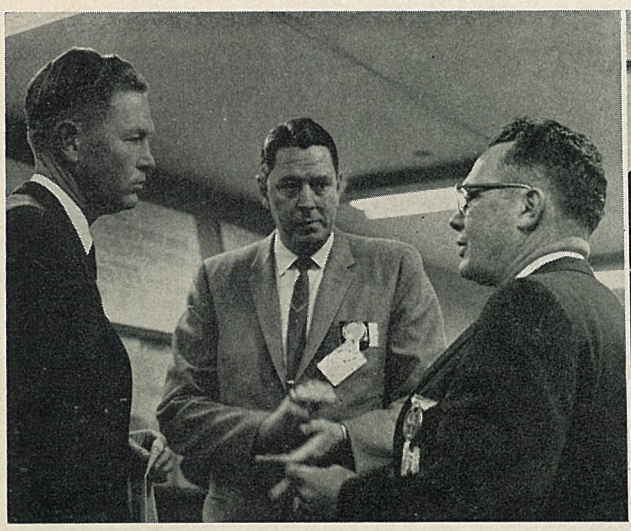
"We heard ABC's version of 'Voice of America' from about 10 p.m. their time until 6:01 a.m. when recovery was accomplished," Schroeder said. "I heard J. R. Dempsey and W. H. Patterson being interviewed at the main plant . . ."

Schroeder said Glenn's thanks to citizens of Perth for turning on their lights during his pass was a tremendous success.

Schroeder's opinions were shared by E. P. Hartman, NASA senior scientific representative at Melbourne, whom he visited.



ON TOUR—Group of General Dynamics field office personnel from U. S. and abroad are briefed by H. L. Gates, GD/Electronics manager of operations at San Diego, during stop at electronics production area on recent orientation tour of various GD divisions.



ON TOUR—Maj. Gen. Thomas P. Gerrity, commander, Ballistics Systems Division, and staff members toured all Atlas silo bases recently, accompanied by representatives of all major contractors and subcontractors involved, including GD/Astronautics. At right above are Gerrity and J. R. Dempsey, GD/Astro president, during Altus AFB conference and in center Gerrity addresses group there. At left, Dempsey and P. M. Prophett, director of base activation for GD/Astro, listen to J. N. McPheeters, GD/Astro operations manager at Altus. At each base these visitors conferred with key Atlas personnel including SATAF representatives.

Spring Signal

GD/FW Archaeologists Range Far Afield in Hunt For Relics

A half-dozen GD/Fort Worth employees see spring as a signal for fanning across Texas and nearby states in quest of mementoes of the past.

They're all members—perhaps the nucleus—of the Tarrant County Archaeological Society, dedicated to unearthing material remains of past human life.

Joe F. Cochran, manufacturing research engineer, can hardly wait to get back to "my own little cave" in Colorado. He discovered this untapped mecca for relic hunters in a remote section last year.

Cochran is president of the society, despite having been a member only one year.

Another tyro, Carl Johnson, project nuclear engineer, will head back to a rock shelter he discovered while camping in Arkansas near the Missouri line last year.

Two of the more experienced amateur archaeologists — R. E. Forrester Jr., a chemist, and Bob Norment, cost analyst—are planning spring and summer trips.

Forrester recounted his most memorable "hunt" with a statewide group which uncovered a burial site near Lewisville, Texas, estimated to be 37,000 years old.

"That dates back to the early Cro-Magnon or late Neanderthal man era," Forrester said. "We found about 18 fireplaces from 12 to 28 feet underground."

Heading for a lonely spot on top of the Continental Divide in New Mexico is G. L. Allen, tooling department, who plans to spend his vacation seeking artifacts of the basket-making Indians of that area.

"These Indians also made a lot of pottery," he said, "which must be pieced together."

Another society member, R. L. Tapscott, often thinks about returning to near Edwards AFB, Calif., where he began his hobby.

"I stumbled onto remains of an old Indian camp one day, and I've been an amateur archaeologist ever since."

Collectively, the GD/FW group has an array of fossil relics, artifacts and other mementoes representing a wide variety of ancient Indian cultures in the Southwest.

"We use whatever clues are available in selecting an excavation site," said Forrester, "such as a protrusion from a vertical creek bed, chipped flint on the ground, burned rocks, water supplies, and so forth.

"Findings are routinely reported to the society, and often relics are passed on to museums if scientific value warrants."

Dynamics Men Die in Crash

Three General Dynamics men lost their lives in the crash of an American Airlines jetliner the first of this month in New York.

I. M. Nestingen of Corporate Office at San Diego; J. P. Lowery, a senior buyer for General Dynamics/Convair; and Robert Dunston of General Atomic were among the 95 killed.

Nestingen, who joined General Dynamics at Convair in 1941, was staff assistant to the director of research engineering in the Corporate Office. He was responsible for staff supervision over research programs.

Lowery, a native of Fort Worth, Texas, first joined the company at Fort Worth division in 1951 as a material analyst. After a lapse of about four years, during which he served as a Navy pilot, he rejoined GD/Convair at San Diego in 1955 in the purchasing department.

Dunston had been with General Dynamics / Astronautics division from 1956 until a month ago when he was transferred to the General Atomic staff. He was electronics representative for quality control.

An Irvin M. Nestingen Memorial Scholarship Fund has been set up in memory of the General Dynamics executive. It will aid engineering students at the University of Minnesota, his alma mater. Donations are being handled through the office of J. P. Hamill, GD director of research and engineering at San Diego.

IMPOSTER—GD/Astro's James S. Bruce Jr., shown posing as "Abdullah" in student hoax.

Photo Recalls 'Abdullah's' College Hoax

A GD/Astro standards laboratory technician assigned to Vandenberg AFB is usually known as James S. Bruce Jr., but occasionally goes by the name of Abdullah.

While a student at Indiana Central College, Indianapolis, Ind., Bruce became friendly with several foreign students, including Rauf Yacu and Atta Mirza, whose homes are in the Middle East.

From them Bruce acquired a knowledge of their native customs and a vocabulary that included Hookah (for smoke), Abbayae (robe), Kafeia (cape), Agal (headpiece), etc. As a practical joke, the foreign students dressed Bruce in a combination costume and introduced him to James E. Callahan of Indianapolis as "Abdullah, a new student from Iraq."

Callahan was courteous but became more and more skeptical of "Abdullah's" fluent English, and the deception didn't last long. It ended in a friendship that persevered, however. Bruce, who joined GD/Astro in February, 1961, was reunited with the others last Christmas, at which time Callahan took the photo which accompanies this story.

General Atomic HTGR System Adopted For New Power Plant

The Atomic Energy Commission in Washington last month authorized construction of the world's first high temperature, gas-cooled nuclear power station at Peach Bottom in southeastern Pennsylvania on the system of the Philadelphia Electric Company.

A construction permit for the 40,000-kilowatt prototype plant was issued following hearings which established that the plant's design conforms to the safety standards fixed by the Government for all nuclear installations.

The Peach Bottom plant will be built by Philadelphia Electric and 52 other investor-owned utility companies located throughout the United States and organized as High Temperature Reactor Development Associates, Inc. The 53 companies, which generate 42 per cent of all the electricity produced by the investor-owned power companies in the United States, comprise the largest group of utilities ever to support a nuclear power project.

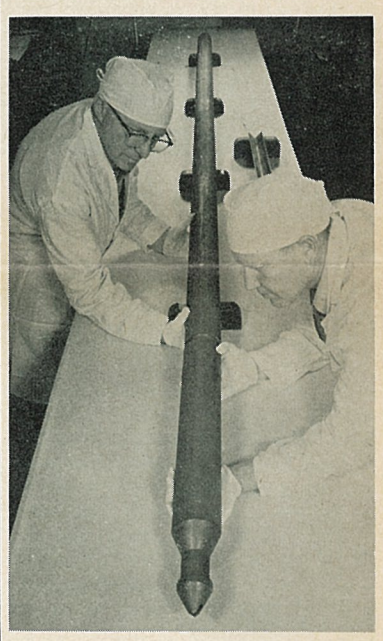
Philadelphia Electric will own and operate the plant as a unit of its 3.5-million kilowatt power generating system, serving more than a million customers. Philadelphia Electric is inter-connected with other systems in New York, New Jersey, Pennsylvania, Delaware, and Maryland.

When completed in mid-1964, the plant will represent the first commercial application of a new, advanced concept of nuclear power generation, known as the High Temperature, Gas-cooled Power Reactor (HTGR). The HTGR system has been under intensive development since 1957 by General Dynamics Corporation's General Atomic Division in San Diego.

Peach Bottom will be the first nuclear plant to produce commercial electric power at modern, high-efficiency steam conditions of 1,000-degree (F) temperature and pressure of 1,450 pounds per square inch.

When placed in operation, the Peach Bottom plant will cost in excess of $47 million, including research and development. Of the total cost, $24.5 million is being borne entirely by Philadelphia Electric and the 52 other HTRDA companies under a fixed-price contract with Bechtel Corporation, engineer-constructor and prime contractor. The $24.5 million includes the reactor and nuclear steam supply system which General Dynamics is supplying under sub-contract with Bechtel. Westinghouse Electric Corporation will furnish the plant's turbine generator.

The Atomic Energy Commission is contributing up to maximum of $14.5 million toward General Dynamics' research and development costs for the advanced concept plant. The AEC also is waiving use charges up to $2.5 million on nuclear materials for the research-development program and on the nuclear fuel used during the plant's first five years of operation.



FUEL—Graphite-clad uranium and thorium fuel elements are assembled for power plant at General Atomic.

The 53 companies of HTRDA, including Philadelphia Electric, are contributing $16.5 million of the $24.5 million contract price as a joint development program. Philadelphia Electric is paying the other $8 million, as well as an additional $4.9 million for providing and preparing the site, plus fabrication of the nuclear fuel elements.

STUDENTS OF THE PAST—GD/Fort Worth boasts some expert, amateur archaeologists. At left is R. E. Forrester Jr., Dept. 28-1, with part of his collection of findings. Next is J. F. Cochran, Dept. 23-1, president of local Archaeology Society, with "matate" used by ancient New Mexico Indians. Center, right, is Bob Norment, GD/FW rockhound commissioner, with theater lobby display. Right are Mr. and Mrs. G. L. Allen Jr., Dept. 81, with pottery they have uncovered.

Astro Weld Carriage Floats on Air Bearing

The "state of the art" in electronic welding has taken a long stride forward, thanks to a recent application of the friction-free air bearing developed at General Dynamics/Astronautics.

Progress in electronic welding techniques had far outdistanced advances in mechanical designs for moving the welding head throughout its work path smoothly and without vibration.

In GD/Astro's applied manufacturing research (Dept. 290-2), E. L. Christian and T. A. Herbert, co-developers of the air bearing (**General Dynamics NEWS**, Jan. 17), tackled this problem by building an air bearing carriage for an eight-foot straight line traverse welder.

"Using the new carriage, we can now effectively join materials only .003-inch thick," Christian stated. "We also achieved 50 per cent improvement in surface finish of the weld."

Air bearings eliminate friction by "floating" on a thin cushion of air or inert gas, which is channeled at low pressures through specially designed tributary networks on the bearing surface. Because of their ability to lift tremendous loads, a multitude of applications has been proposed for them.

In the welder carriage, four of the bearings support and position the welding head, while the device is traversed by a simple rubber-roller drive.

The carriage is operated on the factory air supply, or can be adapted to function with a portable air source. Because there is no friction, lubrication is unnecessary, and maintenance is further reduced by the self-cleaning action of air escaping from the bearings.

The air-bearing carriage can be operated during an eight-hour day at an estimated cost of 2.7 cents!

Prior to installation of their "air-borne" device, the inventors made exhaustive tests of the welder's original carriage. This rode on 10 roller bearings, and was traversed by a gear drive.

It was apparent that the mechanical carriage introduced vibration, backlash and "flutter" which seriously hindered the welder's ability for precision work.

The gear drive produced vibrations, and the roller bearings even transmitted vibration present in the welder's factory environment to the welding head. The gear drive produced flutter and backlash greater in some cases than the thickness of the materials being welded.

"Vibration at the point of weld causes harmful stress risers, particularly in notch-sensitive materials, and mixes in air which raises the weld and interferes with desired fusion," Herbert explained.

The frictionless ride of the air bearing carriage, on the other hand, produced almost no internal vibration. Flutter and backlash disappeared.

In addition, the thin layer of air between the bearings and the surface on which they ride serves as a "shock absorber" to diffuse vibrations arising in surrounding factory areas.

Accelerometer measurements show that use of the new carriage reduces horizontal vibration 400 times, and vertical vibration 23 times over that present with the mechanical carriage.

For even more startling results, the inventors have proposed mounting the entire welder and stand on a large air bearing, which would completely isolate it from environmental vibration.

Where the old carriage produced a weld finish nearly eight times as rough as the original material, the air-borne welder turns out a weld only three times as rough: an improvement of over 50 per cent.

"Carriages using the air bearing principle can be fabricated easily and economically," Christian concluded.

SMOOTH AS SILK — H. C. Underhill, Dept. 290-2, operates straight line traversing welder equipped with new air bearing carriage. New carriage permits high quality welding of extremely thin materials.

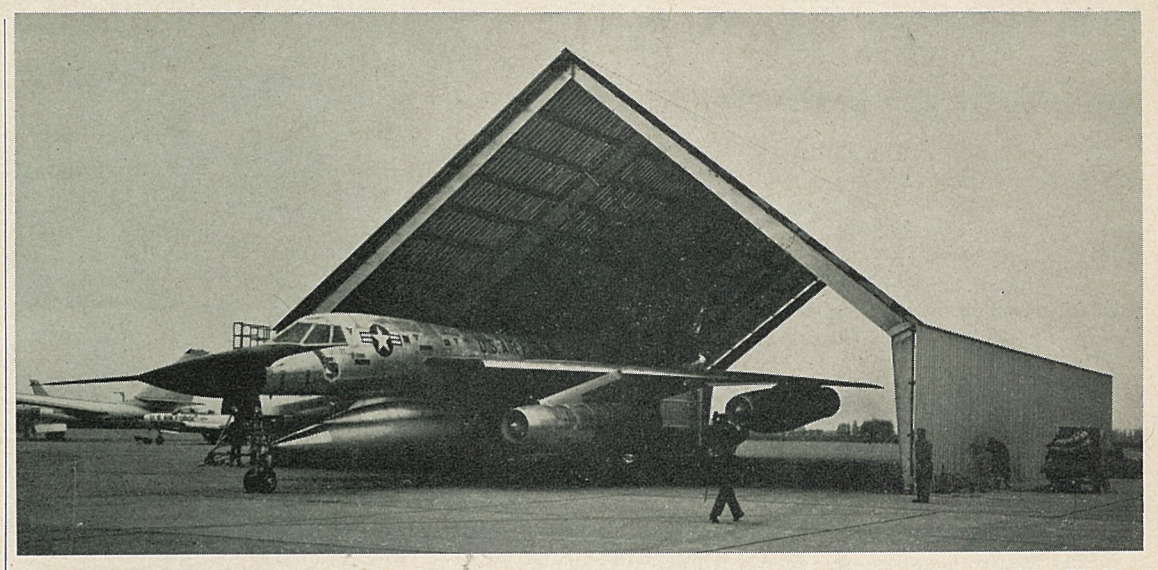
Scholarships Awarded 16

Sixteen San Diego State College students have been chosen for General Dynamics/Astronautics scholarships.

Awarded on the basis of aptitude, scholarship, need, and likelihood of success in a given study area, grants are for $75 each, and are renewable each undergraduate semester if scholastic standards are maintained.

Scholarships this semester went to Fred O. Andrews Jr., accounting; Robert Becker, John J. Emrich, Richard S. Wayne and Bruce H. Weber, chemistry; and Howard J. Bryant, Robert A. Hartmann, and William A. Hines, physics.

Dale E. Eyman, business management; Roland H. Fisher, Robert R. Smith, Rory J. Thompson and John K. Ware, mathematics; William Y. C. Howo, engineering; James J. Lisec, personnel management; and Stephen L. Pentoney, industrial management.



ROLLING OUT—Snug fit of B-58 is shown as Hustler taxis onto flight line at Bunker Hill AFB, out from under new shelter.

Easily Moved Alert Hangars Protect Bunker Hill Hustlers

"Portable," open-end alert shelters are now protecting B-58 Hustlers and their flight and maintenance crews from the elements.

Twenty-five of the corrugated metal shelters, 75 feet wide and 120 feet long, are being put in service at 305th Bomb Wing, Bunker Hill AFB, and 43rd Bomb Wing at Carswell AFB.

Although installed for permanence, a shelter can be moved simply by jacking it above cement-anchored bolts and placing special wheels under the shelter's six rigid steel frames. A shelter detaches at the fourth column, requiring two trucks to tow it.

A demonstration of the shelter was recently staged for the Air Force at Bunker Hill Air Force Base, where a number of the shelters are already installed.

A dozen of the new buildings were nearly ready at Carswell in late February, with completion of the other units slated soon.

In addition to providing shelter for the plane and its ground and flight crews during various phases of maintenance and preflight, the shelters also tend to eliminate some "jet noises."

Shelters were manufactured by Butler Manufacturing Co.

Sailplane Altitude of 5,655 ft. Wins Annual Convair Trophy

A former General Dynamics/Electronics man and a General Dynamics/Astro engineer took top honors in what may well be the last Pacific Coast Mid-Winter Soaring Championships held at the scenic Torrey Pines Glider Port near San Diego.

(The glider port site is being eliminated for construction of Dr. Jonas Salk Research Institute.)

John Williams, formerly of GD/Electronics, amassed highest total number of points to win the John J. Montgomery Memorial trophy for overall soaring performance. He scored 837 points in bomb drops, spot landings, altitude, and endurance events during the two-day meet Feb. 24-25.

He also was awarded the Convair trophy for reaching highest altitude of 5,655 feet.

Sterling Starr, now of GD/Astro and long-time soaring enthusiast, was overall runner-up with 751 points. He finished first in distance.

Junior championship trophy was won for the second year in a row by Keith Allen, son of Fred Allen of GD/Astro. Jack Green, flying a sailplane built by George Tweed, former GD/Astro man, placed third. Other General Dynamics pilots competing included John Petre of GD/Astro.

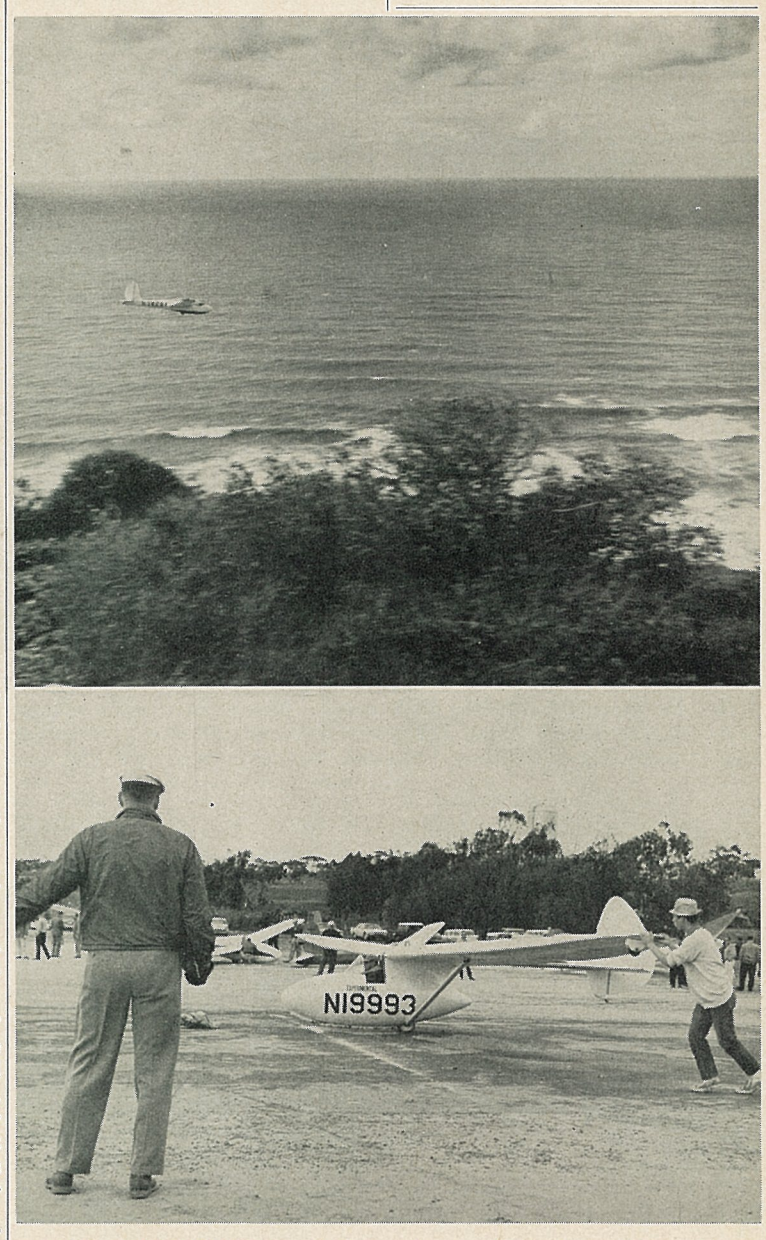
At least a score of General Dynamics men had a share in the annual contest. James Spurgeon, GD/Convair engineer, was master of ceremonies, explaining activities to the over 10,000 spectators. Twenty-seven sailplanes took part in the various events.

Others taking part in meet operations were Gene Cain, GD/Convair Dept. 6, meet starter; Carl Stark, also of GD/Convair, and sons, who aided in ground operations.

Gene Whigham, CRA Glider Club commissioner, and Ernie Shattuck of GD/Astro, provided pre-takeoff assembly inspections. Duke Stallings of GD/Convair was air traffic controller. Walt Mooney, GD/Convair, flew as tow pilot, recovering a number of sailplanes from the beach below the Torrey Pines cliffs.

Leon Montgomery of GD/Astro organized pilot entertainment activities. Kon Hanitzsch of General Atomic is president of the Associated Glider Clubs of Southern California which co-sponsored the annual event with the San Diego Junior Chamber of Commerce.

Save Material — Don't Throw Your Job Away!



SMOOTH "SAILING"—Sailplane is caught between sky and sea off Torrey Pines cliffs (near San Diego) at spectacular Glider Port, site for many years of annual Pacific Coast Mid-Winter Soaring Championships. In shot below, Gene Cain of GD/Convair (back to camera) directs ground traffic during Feb. 24-25 competition. —Photos by Bill Carter of GD/Convair.

Standards Lab Functions Told Quality Control

A series of conferences to more thoroughly acquaint quality control supervision at GD/Convair with functions of the division's standards laboratories is in progress.

The lectures and lab tours are a part of the methods analysis program instituted by W. J. Martin, director of quality control, more than a year ago to evaluate all quality control procedures.

In initial meetings requirements of a primary standards laboratory and methods of assuring accuracy of instruments was described by W. A. Dershem, assistant test group engineer. Standards equipment for certifying electronic and microwave standards of frequency, power, and attenuation were explained and demonstrated.

Other facets of both the primary standards and calibrating laboratories, all under direction of W. R. Holmes, head of the standards laboratories, are being explained in following meetings.

The familiarization is extending over at least five weeks.

$299 Vacation Tour to Hawaii By Air Offered GD/Astro Folk

An 11-day group tour to Hawaii for employees and members of their families has been announced by GD/Astronautics Recreation Association.

Total cost of the trip, including air transportation, hotel accommodations, a variety of side trips and entertainment, is only $299 per person.

Tour itinerary calls for departure June 3 via chartered Pan American World Airways DC-7 for Hawaii, where the group will stay at the Reef Hotel on Waikiki Beach.

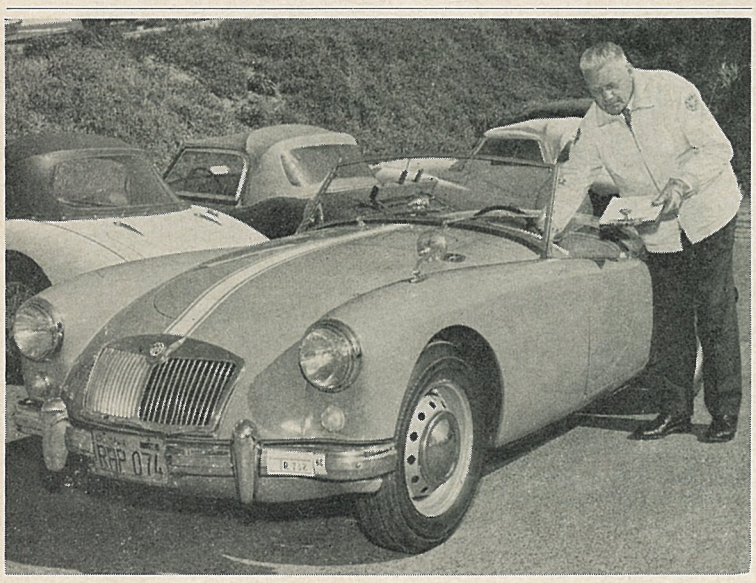
In the islands, participants will take a full-day tour of Oahu Island, cruise Pearl Harbor, and visit Mt. Tantalus. One evening will be devoted to a traditional Hawaiian luau feast and entertainment.

Throughout the stay, liberal free time will be available for travelers to engage in independent activities.

Tour reservations will be accepted at employee services office, Bldg. 8, between 11 a.m. and 1 p.m., daily. A $50 deposit is required at the time each reservation is made.

Eligible for tour participation are all those persons employed by GD/Astro for at least six months, as well as members of their immediate families.

If interest warrants, a second trip may be arranged for June 13 departure.



DRY RUN—Bud Farnsworth, rallymaster for coming CRA-sponsored "Seat of Pants" sports car rally, snapped beside his MG with clipboard and stop watch after timing leg of route.

ARA Calendar

(GD/Astronautics Recreation Association has some 45 activities in operation for employees. For information, call ARA Headquarters, ext. 1111.)

★ ★ ★

ARCHAEOLOGY — Meeting 7:30 p.m., March 29, ARA Clubhouse. Guest speaker.

ASTRONOMY—Business meeting 7:30 p.m., March 14, ARA Clubhouse.

ASTRO NOTES—Choral group meets and rehearses at 7:30 p.m., Mondays, ARA Clubhouse.

BADMINTON — Tournament in Federal Bldg., Balboa Park, beginning 10:30 a.m., March 17. Registration with Dee, ext. 1111.

BRIDGE — Meetings, play, every Thursday, 7:30 p.m., Barcelona Bridge Club, Fourth and Juniper.

COINEERS — Meeting 7:30 p.m., March 21, ARA Clubhouse. Panel discussion and display contest. Second Shift Coin Club—Meeting and election of officers, 1:30 a.m., March 22, ARA Clubhouse. Picnic, 2:30 p.m., March 25, Recreation Area.

DRAMA — Workshops starting 7:30 p.m., March 14, ARA Clubhouse. Casting for May production planned March 29-30.

FASHION SHOW—March 28, 8 p.m., Bldg. 2, lobby. Tickets at $1 available at employee services outlets.

SOFTBALL—Players for ARA Representative Team attend practice at 6:30 p.m., March 20, ARA diamond, or call Forest Erwin, ext. 3509 or 2216.

SQUARE DANCING — Beginners' class open through session at 8 p.m., March 20, ARA Clubhouse. Register at door.

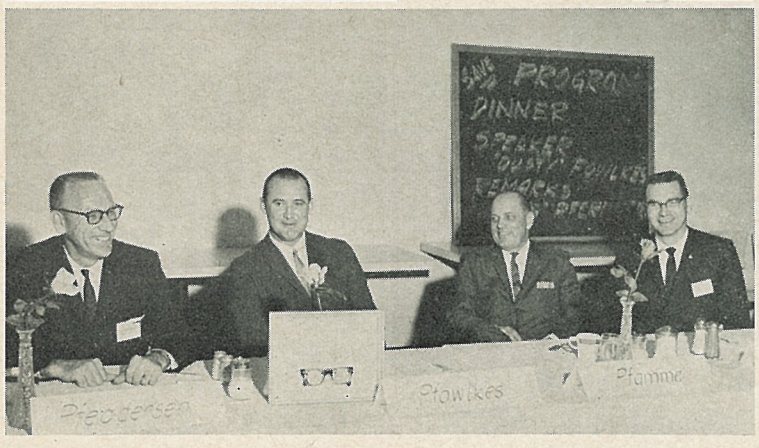
STAMP CLUB—Auction meeting, 7:30 p.m., March 22, ARA Clubhouse. Includes 75 lots of covers, plate blocks, and foreign.

TEEN-AGERS — Dance, 7:30-10:30 p.m., March 24, ARA Clubhouse. Membership card admits member and one guest. Membership applications available at employee services outlets.

'Open Subject' Photo Competition Slated

A membership participation event in the form of an "open subject" photo competition will be conducted by Astro Lens, ARA camera club, at its next meeting, 7:30 p.m., March 18, in the Photo Arts Bldg., Balboa Park.

Commissioner Ken Rinker has reminded members that tickets for the Scott Watson Memorial Salon are now available from Nate Brewer, ext. 3915. This event will be March 31 at Town and Country Hotel, Mission Valley.



PFFT—Labels for E. W. Feddersen, J. K. Fowlkes, J. H. Famme at head table during last week's SAVE indoctrination dinner tagged them all alike to agree with Dick Pferdner (far right). In front of Fowlkes, main speaker, is comic plaque bearing "value technology" glasses given him as GD memento.

GRIDIRON KINGS—Plant champion flag football team is GD/Astro office services group, who received ARA trophies recently. From left are J. R. Blake, J. C. Clinger, Carl Root, John Tom, R. W. Kleinhans, general supervisor who presented awards, J. P. Wayman, E. D. Caggiano, Ulysses Eatmon, C. A. Johnson and S. L. Lakes. Team members not shown are Ron Jones and Gary Euing.

Air Mailers Winners In Flag Football

Members of the plant championship flag football team, the Air Mailers of Dept. 170-2, received trophies presented by R. W. Kleinhans, general supervisor, at a recent ARA Employees' Council meeting.

A total of 22 teams competed over a season prolonged by inclement weather, with the Tigers of Dept. 771 finishing in second place.

Winner of a second shift league was a Dept. 250 team, the Comets.

The flag football program was administered by J. T. McPherson, who arranged two first shift, and one second shift league. All games were played on City Park and Recreation Department facilities.

Anglers Take Annual Awards

Members of ARA Fishing Club walked off with top honors at the recent Southwest Anglers Association dinner in Los Angeles, with the GD/Astro club topping all other participating groups in number of awards received.

Astro members honored for top catches during the past season were Earl Saniford (Dept. 344) who received three trophies, and Bob Grunner (Dept. 143) who carried home four awards.

Commissioner T. B. Field has reminded members that club dues for 1962 are now payable, with old memberships expiring March 31. Dues are $1 per family per year, and interested employees may contact John Holzbog, club membership chairman, ext. 1950, for additional information.

Recent club arrangements now make it possible for members to purchase various types of fishing line through the club at cost. John George, ext. 2220, has details on this program.

Russ Oliver's 272 Wins Pistol Match

Russ Oliver fired 272 to win the center fire short national match during a recent ARA Pistol Club competition, while Roland Schneider edged Ronnie Legg, 289-284 in master class .22 police course firing.

Top contenders in .22 expert class were Mort Williams with 274 and Don Smock with 271. while Fred Bunker scored 262 and Bill Jungk, 252, among the sharpshooters.

In marksman competition, Joe Miller topped Vern Weaver 251-232.

Pistol Club matches are held regularly at the San Diego Police Pistol Range.

Gardeners Entering County Orchid Show

Members of ARA Garden Club will descend on Balboa Park's Conference Building this weekend (March 17-18) for the San Diego County Orchid Show.

Entries from orchid fans among General Dynamics employees will be shown, together with choice blooms from England, France and Australia.

One highlight of the show will be a valuable display of orchids.

Astro Keglers Roll Two Over-700 Series

Two 700 series have been scored by GD/Astro bowlers participating in ARA-sponsored leagues, according to Commissioner Jack Boyle.

Jerry Neff, rolling in ARA's Friday night swing shift league turned in games of 233, 243, 243 for a series total of 719 recently.

Shortly before, George W. Brown delighted participants in the Friday "Cotton Picker" league by rolling games of 239, 236 and 226 for a 701 series.

Astro Players Begin Series

Astro Players, ARA drama club, has announced a new series of weekly dramatic workshops, with the first session tonight (March 14) 7:30-9:30 in ARA Clubhouse.

Free sessions are open to all theater buffs among GD/Astro employees and their families. Program directors John Cone and Art Wright have planned the series to provide group experience, training and criticism.

Topics covered will include dramatic and comedy acting, direction, monologues, production and staging, special effects, make-up, costumes, etc.

Astro Players' script committee is screening plays for the club's next production scheduled in May.

GD/E Working On ASW Task

Projects totaling $2,200,000 for multi-purpose electronic test equipment for checking anti-submarine warfare systems are included in contracts awarded to General Dynamics/Electronics by the U. S. Bureau of Naval Weapons.

Two different pieces of equipment, designated the AN/ARM-53 and 54, are called for by the contracts. Together, they form a complete checkout system for such equipment as the AN/ARR-52 Sonobuoy Receiver, and other electronic equipment used for detecting, identifying and locating enemy submarines.

The AN/ARM-53—a completely transistorized, battery-powered test set—is portable and compact for flight-line checkout of the electronic equipment.

Volleyball League Play to Commence

Volleyball league play for Convair and Astro teams in the Industrial League will swing into action March 21.

Pete Beyrer of CRA said that he will accept team entries from both divisions until March 15.

GD/Electronics volleyball players also are eligible to enter teams, he reminded. Rosters may include 10 players to make up six-man teams and alternates.

Regular games will be scheduled in either Muni Gym or the Federal Bldg. in Balboa Park. League schedule will be announced following organization of teams.

For registration call Beyrer at ext. 1245, Plant 1, GD/Convair.

Father-Son Tennis Team Wins Doubles In Joint Tourney

Sixty-eight GD/Astro and GD/Convair tennis fans played in ARA Tennis Club's recent novice tournament at Morley Field courts.

Winner of men's singles was Bill Rothe, GD/Astro Dept. 596, who downed Gene Borelin, Dept. 591, 6-3, 6-3, while Betty Shuler, wife of Astro's Carl Shuler, Dept. 170, won women's singles 6-2, 6-3 over Ruth Bennett, Dept. 355-2.

A father-son team of Robert (GD/Convair Dept. 31) and Dennis Trout captured the doubles title, defeating Rothe and Mike Getvay, GD/Convair, Dept. 6.

In men's consolation singles, Cecil Norwood, GD/Astro Dept. 531, eliminated Bob Johnson, GD/Convair Dept. 6, 6-1, 6-2.

Winners and runners-up in all events were presented with trophies by ARA Commissioner Ben Cendali.

Ski Members Deadline Set

Final opportunity this month for GD/Astro employees and dependents to join ARA Water Ski Club will come at the group's meeting at 7:30 p.m. March 14 in ARA Clubhouse.

Astro skiers will take to the water April 1, with use of club facilities limited to dues-paying members. The group charges a membership fee of $10 per year.

This year club members will be divided into small groups who may check out one of the club's two boats for a four-hour period on a reservation basis.

Commissioner Bill Johnson hopes to provide more "time on the water" for more members under the group system.

Toastmistresses to Learn 'Listening'

"Analytical Listening," will be theme at the March 27 meeting of Delta Toastmistresses, Virginia Reynolds (Astro Dept. 592-2), program chairman, has announced.

Marie Picotte of Suburban Toastmistress Club (husband Gordon Picotte, Astro Dept. 592-1), will be guest speaker. She will discuss evaluation in club work. Sunny Dark, Astro AF-PRO, will serve as toastmistress, and Barbara McDonald, GD/Electronics, will give the inspiration.

Meetings are held in the second and fourth Tuesdays of each month in the Convair executive dining room, 7:30 p.m. Visitors are always welcome. Further information about the club may be obtained from Martha Woodberry, Delta president, ext. 1245, GD/Convair Plant 1.

Salvage Schedule Set For March

Employees of General Dynamics in the San Diego area may make purchases from 8 a.m. until noon at GD/Convair and GD/Astro salvage yards on the following alternating Saturday schedule:

GD/Convair—March 17 and 31.

GD/Astro—March 24, April 7.

WINTER WONDERS—Ice skaters from both GD/Convair and GD/Astro found Big Bear Lake area ideal for annual mid-winter trek. From left to right, top, are: toboggan riders, including Gil Hutter, Ruth Howell, Ken Corn, Jo Corn, Pearl Weickersheimmer and Jim Spain; cleaning off overnight snow for trip home; an ice skating pair; and a group of novice skiers including Bill, Jean and Diane Harrison and Susan Dempsey. At lower right are "Chefs" Jim Spain and Gil Hutter.

'Convair Special' Tournament To Precede Table Tennis Meet

Table tennis enthusiasts at General Dynamics facilities in San Diego will have a chance to compete in a special class of their own at the coming open table tennis tournament this weekend.

The annual tourney is sponsored by GD/Convair under sanction of San Diego Table Tennis Association and the city park and recreation department. Matches will be held March 17 and 18 in Food and Beverage Bldg., Balboa Park.

GD/Convair, Electronics, Astronautics entrants may register for the 10 a.m. "Convair special" competition March 17 before start of play Saturday morning.

Entries will be taken after 9:30 a.m., said Pete Beyrer of CRA, spearheading arrangements. Entry fee for General Dynamics players is 50 cents each.

Other events in the two-day tournament are open to all San Diego residents at $1.25 per person. Classes include junior men's, A, B, C singles; B, C doubles; master singles and doubles; women's draw doubles; women's singles; mixed doubles. Novice singles is open to players with little or no tournament experience and barred to other players.

All competitors must wear regulation dress. Upper garment must be navy blue or black and the lower, medium grey or matching upper garment. Gym shoes must be worn.

'All Dynamics' Dance Planned

Astronautics Recreation Association's new Clubhouse will be the scene March 31 when an "All General Dynamics" square dance jamboree is held with participants from Astro, GD/Convair, and GD/Pomona.

Expected are from 50 to 60 dancers each from Convair and Pomona and 70 to 80 from the host Astro Nauts club.

Participants will attend a dinner preceding dancing, also to be held at the clubhouse. Honored guests will include the chiefs of employee services from each division as well as incoming and outgoing recreation association officers, according to Marty Stutz, commissioner at Astro.

From 8 to 11 p.m. the Square Notes will play for dancing. Van Vander Walker will serve as emcee and will join guest callers from all clubs for the evening's festivities.

Mgt. Club Bowlers Compete April 15

Five-man teams from GD/Convair and GD/Astro will pit skill and luck in the annual interdivision Management Club bowling tournament set for April 15 at Clairemont Bowl. Action time is 10:30 a.m.

Management Club bowlers at Astro main plant may pick up entry blanks from Forest Erwin, ext. 3509; Dan Buckles, ext. 1691; Mike Brooks, ext. 1241, all Astro site. Astronautics entries at Plant 2 can be made through Larry Buckmaster, ext. 461, Plant 2.

GD/Convair and GD/Electronics keglers can contact Harry Lund, ext. 2321, Plant 1, for registration.

'A' Flight Postponed In ARA Tournament

Emphasis in the up-coming ARA Badminton Tournament slated for Balboa Park's Federal Building March 17 will rest on the novice and "B" and "C" flights. An "A" flight, originally planned, has been postponed.

Play in men's and women's singles, doubles and mixed doubles events are planned, with first rounds opening at 10:30 a.m.

Trophies will be awarded in all events, and shuttlecocks for tournament play will be provided by ARA.

Registration for this fifth annual event of its kind is being handled by Dee, ext. 1111.

Coineers Will Elect Officers March 21

GD/Astro Coineers, ARA coin club, will meet at 7:30 p.m., March 21 in ARA Clubhouse for election of officers and a short business session.

A panel of experienced numismatists will discuss "Factors Affecting Coin Values." Coin exhibits vying for a "best of year" award will be on display.

J. J. Garside is ARA commissioner.

Sports & Recreation

Two Rallies Scheduled For Sports Car Fans

Two rallies, only a month apart, will occupy sports car fans at GD/Astro as contestants or contest administrators within the next few weeks.

At least a dozen GD/Astro cars are expected on the starting line of the fifth annual "Seat of the Pants" rally sponsored by CRA Sports Car Club, March 25.

First car will leave the Mission Valley Bowlero parking lot at 12:01 p.m.

Open to all General Dynamics employees and their families, as well as other sports car enthusiasts, this event is one of two held annually by the Convair club.

The "Seat of the Pants" event, like other rallies, will be a time-distance affair, with drivers and "navigators" striving to complete a given course in a predetermined time.

The contest name derives from the added obstacle of "blacking out" the odometer in participating cars, so only the speedometer is visible. Hence drivers judge elapsed distance by "feel."

On April 28, the ARA Sports Car Club will conduct Atlas Rally IV at GD/Astronautics, with events for both "seat of the pants" drivers and those who prefer more precise forms of navigation.

Information on both contests is available from Rallymasters C. G. "Bud" Farnsworth, GD/Convair ext. 615, or George Lahey, GD/Astro ext. 3206.

Astro Keglers Place In NMA Tourney

Five GD/Astro Management Club bowling teams finished within the top 15 places in the annual District "A" championship event staged by National Management Association March 4 at Anaheim.

Winning sixth place in overall standings and pacing Astro entries was a team composed of Jim Epperly, Mike Edwards, Dave Wells, Gene Harris and Bill Martin. This quintet turned in a 2,720-pin scratch total and a 3,010 handicap total.

Victory in this tournament earned the right for this team to represent Astro May 5-6 in the National Management Association finals to be held in Toledo, Ohio.

Astro Cyclists Lead City-County Contest

Astro Motors, ARA Motorcycle club, now holds three first place positions in annual city-county competition, reports from the San Diego County Road Riders Association indicate.

The ARA group is high scoring club with an aggregate tally of 79, and leads other county clubs with a total of 40 uniform points.

High point navigator is member Gloria Shannon with 12 points, and five other Astro Motors members rank in the top 12 in rider class.

They, with their standings, are ARA Commissioner Paul Shannon (4th); Bob Vaughn (5th); Jack Wachalec (7th); "Pappy" Mundell (11th); and Bill Hesheth (12th).

Workouts Scheduled For Softball Squad

First call for players to form a representative GD/Astro ARA softball team in coming city action was issued this week by Commissioner Forest Erwin.

Initial practice session has been set for 6:30 p.m. March 20 at the ARA softball diamond east of the main plant, weather permitting.

Astro's entry will take part in a pre-season tournament starting in late April, Erwin said. Those unable to make the initial practice session may contact Erwin at ext. 3509 or 2216 for further information.

Skaters Frolic During Annual Trek to Snow

Even a script writer couldn't have dreamed up a better scene for the annual Astronautics-Convair mid-winter excursion to Big Bear Lake, sponsored by ice skating groups.

About five feet of snow covered slopes and valleys when the General Dynamics crowd, 108 strong, converged on the area Feb. 23. Snow plows had done their work, so chains were not needed. By departure time on Feb. 25 another foot of snow had been added.

Wawona Lodge was reserved entirely and served as headquarters. Breakfast both days, dinner on Saturday, hot snacks in between and a pizza party Saturday night were provided. Gil Hutter and Jim Spain presided at the stoves and fed the crowd in shifts.

Expert and novice skiers found everything to their liking Saturday and Sunday. Family tobogganing, snowball fights and sight-seeing drew others.

Sunday morning Iceland was reserved for an hour for group skating. Many remained far beyond this time to skate.

The snowfall came late Saturday afternoon and through the night, with Sunday again breaking clear.

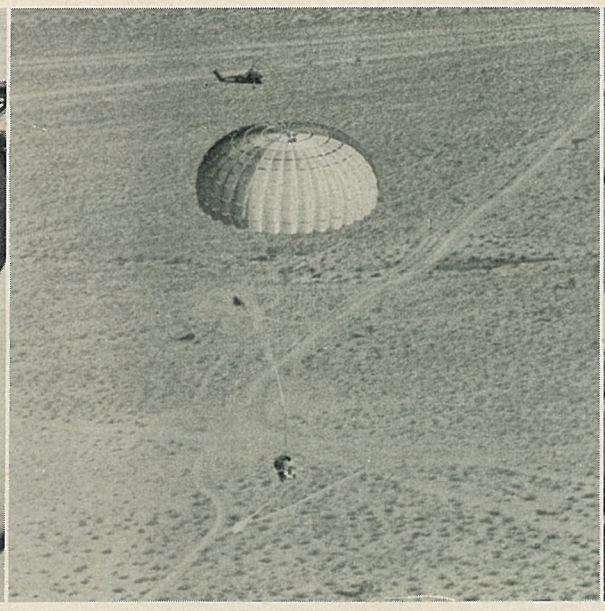
18 Charter Members Organize Coin Club

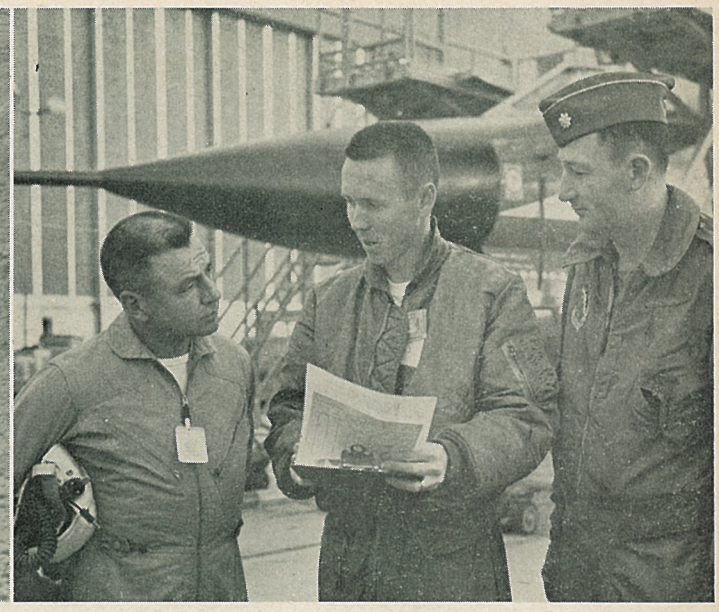
Organizational meeting of the new ARA Second Shift Coin Club was held early this month with 18 charter members attending.

The new group will meet in ARA Clubhouse at 1:30 a.m. on the third Thursday of each month.

Next business session is March 22, when club by laws will be adopted and a formal election of officers held. Bob Killian, Dept. 223, is acting chairman until that time. Agenda for this meeting also includes a movie and coin auction.

On March 25, the group will hold a "bring-your-own" picnic in ARA Recreation Area at 2:30 p.m. This event is planned to permit participation of members' numismatically inclined wives.





SUCCESS—At left above C/WO Edward J. Murray is greeted by Lt. Col. George Harchalk, ASD, and Lt. Col. Earl W. Udick, human factor chief for SAC at Omaha, seconds after ejection at 565 mph at 20,000 feet in B-58 escape capsule over Edwards AFB. At far left is Charles Widaman, GD/FW project captain. In center, helicopter hovers as chute settles. At right, Murray goes over check list with Robert W. Sudderth, civilian project engineer, and Major Fitzhugh L. Fulton, test pilot.

AF Ex-Combat Parachutist Ejects Via Capsule From B-58 at 565 mph

First manned ejection in a B-58 escape capsule—by an Air Force parachute tester in a Hustler speeding along at 565 mph and 20,000 feet over Edwards AFB—paved the way for a series of supersonic ejections this spring.

"The supersonic series will climax with a manned ejection at Mach 1.3 at 35,000 feet," said Chuck Widaman, GD/Fort Worth project engineer in charge of the project.

Chief Warrant Officer Edward J. Murray, ex-combat parachutist, reported succinctly after his historic 7-minute, 8-second descent in the capsule Feb. 28: "No sweat—I feel fine."

He was blasted 250 feet in the air from second station by two rockets with about 10,000 pounds of thrust. Maximum vertical acceleration on the occupant was 13-plus G's, incurred in a fraction of a second.

A small drogue, or stabilizing parachute flared as the capsule and occupant—weighing a total of 701 pounds—entered the tornadic slipstream.

During a 5,000-ft. free-fall, the capsule dropped at 250 feet a second.

At about 15,000 feet, an automatic air-pressure device triggered the 32-foot main chute, wafting the capsule to earth at an average drop rate of 27 feet a second.

Murray's condition was described as "excellent" by Air Force physicians who examined him immediately after the test.

"It was a much easier, nicer and gentler ride than I anticipated," said the twice-decorated combat veteran of 14 months in Europe from Normandy through VE Day.

"I can assure you it's a lot easier than open-seat ejection."

The wiry Murray said he was comfortable going down after the main parachute opened and began lowering him to the ground.

"I had no sensation of turning, spinning, or falling during the free fall before the chute opened," he said.

The ejection was Murray's 547th "jump"—421 of which have been made testing new chutes.

Maj. Fitzhugh Fulton, veteran bomber test pilot who was formerly B-58 evaluation pilot at GD/Fort Worth, piloted No. 2 on the mission.

In the rear cockpit completing a check list of a dozen instruments was Robert Sudderth, civilian engineer and project supervisor. It was Sudderth who gave the pre-arranged signal for Murray to batten down and blast out.

The successful manned shot culminated a series of subsonic ejections with both dummies and chimps at Edwards, and a static ejection at Fort Worth.

Since 1953, except for a year in Japan, Murray has been assigned to the parachute branch of the Aeronautical Accessories Laboratory of what now is the Aeronautical Systems Division, Wright-Patterson Air Force Base, Dayton, Ohio.

Widaman's team is now readying Hustler No. 2 for the series of supersonic ejections, which will eventually result in what will probably be the fastest controlled aerial ejection in history.

Widaman said several ejections at Mach 1.3 at 35,000 feet and Mach 1.6 at 45,000 feet would precede the manned supersonic "bailout."

The project captain reported that the 25-man GD/Fort Worth team of engineers and technicians has done an "outstanding" job throughout the program at Edwards.

"We've also received top-drawer help from Stanley Aviation (manufacturers of the capsule), and Air Force personnel from the Air Force Flight Test Center at Edwards and the Aeronautical Systems Division," Widaman said.

The B-58 capsule is slated for installation on all combat Hustlers.

NICE FIT—Air Force personnel, from left, H. F. Magruder, ATC, E. P. Fitzgerald and Doug Palmer, SPO, check out MTU pilot's capsule slated for eventual delivery to 305th Bomb Wing.

B-58 Capsule Trainer Built at FW Will Be Shipped to Indiana Base

A pilot's escape capsule and canopy trainer slated for use in the 305th Bomb Wing passed Air Force inspection here this month.

The new Mobile Training Unit (MTU) will be retained inplant for Air Force maintenance training classes before being shipped to the Peru, Ind., base in late March.

Maintenance personnel from the 43rd Bomb Wing at Carswell AFB will join 305th airmen—along with others—for the orientation sessions.

Designed by engineering and constructed by development departments at General Dynamics/Fort Worth, the trainer will be used for both pilot and crew training in the B-58 escape capsule.

C. L. Parkin, senior design engineer-MTU, was in charge of the inspection at GD/Fort Worth, assisted by E. L. Tucknies, assistant foreman Dept. 65, and N. G. Jones, Dept. 7-2.

Representing Air Force were: Doug Palmer and Ed Fitzgerald, Systems Project Office; Maj. Stanley G. Phelps, Headquarters Air Training Command; CM/Sgt. H. F. Magruder, Chanute AFB; and F. H. Wilhoite, Air Force plant representative's office at GD/Fort Worth.

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Panel Used to Explain Capsule Lights Up 'Like Christmas Tree'

A training panel at General Dynamics/Fort Worth equipped with the lighting gadgetry of a Broadway marquee is being used to show Air Force personnel what happens mechanically during a B-58 capsule ejection.

The new Mobile Training Unit (MTU) in educational services shows virtually every mechanical step that takes place during pre-ejection, ejection, and recovery steps of a "bailout."

Initiators on the capsule are indicated by red stars, while white and yellow dots are used to show location of safety pins. Hot gas is indicated by red lines, pressurized air by blue, and oxygen by green.

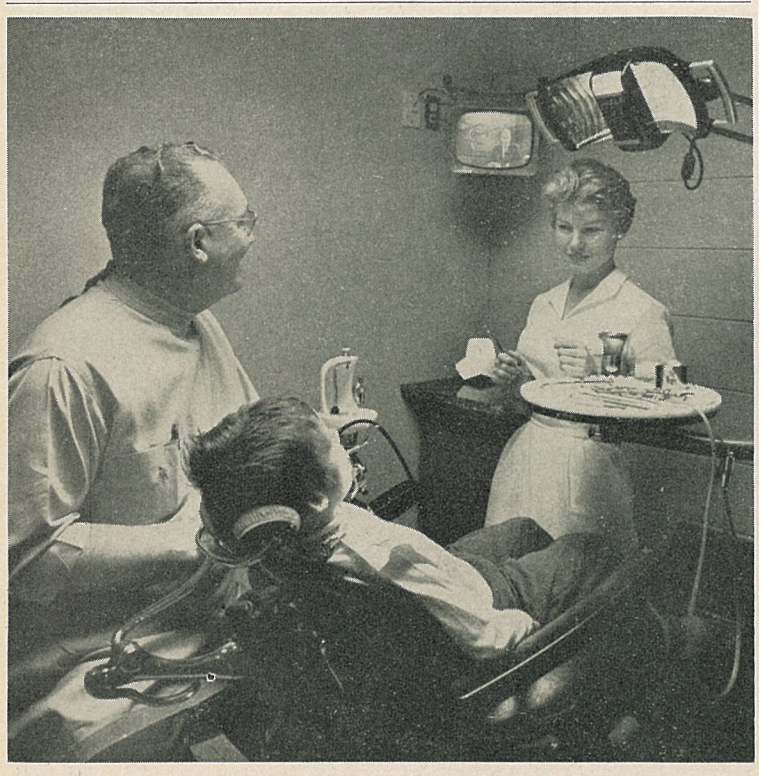
"As the ejection sequence is reeled off, different colors appear on the panel to indicate the system sequence under discussion," explains Jim Ancy of Dept. 3-3, who will instruct Air Force classes which were slated to start here March 12.

Real eye-catching part of the panel are the "hot gas" and "oxygen" parts of the sequence. Routes of both are traced by "flicking" lights which show direction of flow. The effect is created by a motor-driven relay system which sends voltage to desired points on the panel.

The panel further traces mechanical action that occurs as the capsule switches to snorkel air as it nears 10,000 feet, and finally lands.

"When the panel is all lit up, it looks something like a Christmas tree," Ancy said. "It's been a very effective teaching aid in the maintenance, inspection, installation and safety classes we've held on the capsule."

The panel was evolved through the cooperative effort of engineering mobile training unit group, development department and educational services.



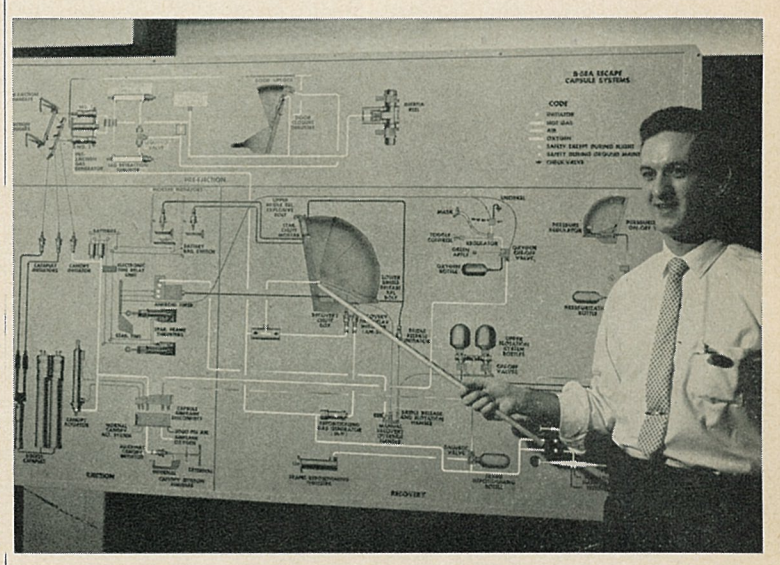
DISTRACTION—Donna Lonneke, 5, daughter of GD/Astro's J. A. Lonneke stationed at Altus AFB, was in dentist's chair during Mercury orbit, but watched TV just the same! Dentist is Dr. C. G. Ruffel and aide is Mrs. Virginia Gudfundson. Photo by GD/Astro's George Smith.

Ehricke Addresses Propulsion Meeting At Cleveland, Ohio

Krafft A. Ehricke, director of advanced studies for General Dynamics/Astronautics, was one of the main speakers at the National Propulsion Meeting held in Cleveland, Ohio, last week.

The technical sessions dealing with latest advances in aerospace propulsion were co-sponsored March 8-9 by the Institute of the Aerospace Sciences and National Aeronautics and Space Administration's Lewis Research Center. All meetings were limited to members with secret classification.

Ehricke's subject was "Propulsion Systems for Lunar Landing and Takeoff."



STARTS HERE—Jim Ancy of educational services explains mechanical functions of B-58 capsule systems to Air Force personnel on new brilliantly lighted panel.

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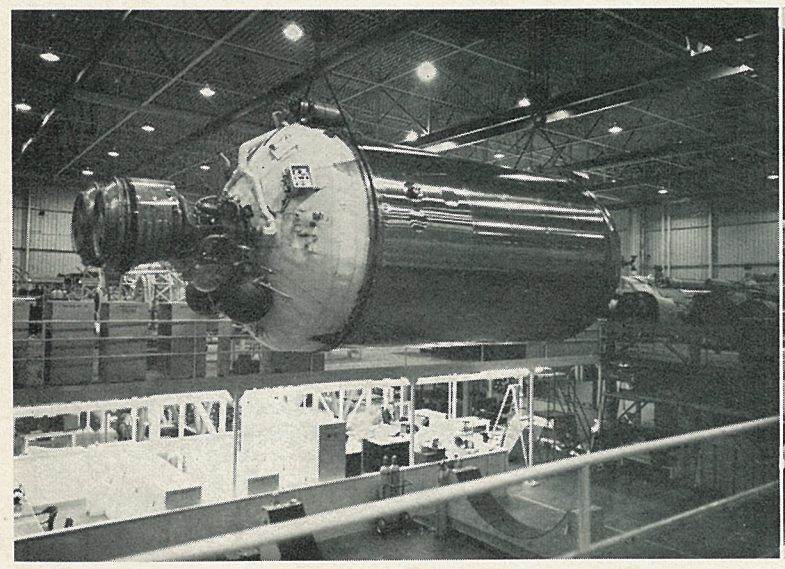


"FLYING" CENTAUR—At left, Centaur test vehicle is shown being lifted by crane for transfer to Sycamore Canyon in static testing of engines and systems. At right is Ernest A. Baldini, who will be test conductor when Atlas-boosted Centaur is launched from Cape Canaveral's Complex 36. Centaur will be nation's first "high energy" vehicle.

Corp. Offices Consolidated in New York City

Consolidation of General Dynamics corporate headquarters in New York City was completed this month with the transfer of key executives from San Diego, final step in a strengthening move begun some months ago.

Roger Lewis, General Dynamics president since Feb. 22, made the announcement March 16, effective at once.

R. H. Biron, vice president, will be the only corporate officer remaining at San Diego.

Among those transferring to New York were E. J. Williams, senior vice president-manufacturing; C. L. Meador, vice president-contracts; K. M. Smith, vice president-program development; and J. P. Hamill, director of research and engineering administration.

In line with Lewis' announcement that "all efforts will be made to absorb remaining corporate staff personnel into General Dynamics Divisions in the San Diego area," a placement service is in operation.

Among those transferring immediately to divisions were Robert T. Conley, joining GD/Convair as director of commercial sales; Kenneth C. Gordon, as assistant manager - commercial sales; and David Downey, as assistant sales manager - domestic. Also, S. Y. Johnson, former executive assistant, is joining GD/Astronautics as assistant to the director of management systems, George Robertson.

GD/Astronautics, hard pressed for office space at its home plant on Kearny Mesa, has been offered space on the lower floors of Bldg. 19, but at press time no

(Continued on Page 2)

Free Physicals Offered Astro Senior Citizens

A select group of General Dynamics/Astronautics employees at San Diego—"senior citizens" approaching retirement — may now receive free physical check-ups at the plant hospital.

About 91 employees, those eligible for retirement at the age of 65 within the next two years, are eligible.

Physical checks are part of a retirement planning program. Other aspects include counseling on income planning, personal adjustments to leisure time, medical problems, etc., on an individual basis. Also included are group sessions on social security, investments and similar subjects.

Those involved may take advantage of the check-ups only if they desire, with the understanding that results remain confidential.

"Check-ups are strictly a service to employees about to retire," said Dr. A. J. Bellanca, chief physician. "They are a complete diagnostic physical, and a means of determining general health and detecting questionable areas. In the latter, the patient may go to his family physician for remedial action in advance of retirement."

About an hour is required for the check-up, which may be taken during regular work hours. A medical history is taken first which is little more than a recounting of past illnesses and injuries that may warrant special attention during the examination.

(Continued on Page 2)

F-1 Control Team Plays Key Role With Centaur

In the near future an Atlas/Centaur space vehicle will be launched for the first time from Cape Canaveral. It will be this nation's initial "high-energy class" vehicle powered by liquid hydrogen-liquid oxygen engines.

Behind this launch will be the contributions, both individual and combined, of many: National Aeronautics and Space Administration (NASA), the sponsoring agency; the Air Force, a major contributor; General Dynamics/Astronautics, prime contractor; and many associate and sub-contractors.

Without minimizing these contributions, special praise is due a unique group that has, within a limited period of time, lent outstanding progress to the program.

Known formally as the "F-1 (first Centaur flight vehicle) Status Review Board," the group is more commonly called the Centaur F-1 Control Team. It was created last November with F. X. Marshall, as chairman and brought together key personnel from every major Astronautics department involved in Centaur work, plus NASA experts.

A part of the Control Team was assembled at Complex 36, Cape Canaveral, under W. R. Jackson. Through a unique communications tie-in, the two groups "met" daily in joint sessions.

In less than five months 70 "meetings" were held, made possible by conference phone calls.

At each session status reports on Centaur were presented. Problem areas were assigned to team members with firm "get action" orders. Special tools, critically-needed parts, special reports, etc., began to move quickly and efficiently. Common shortage reporting systems were devised, along with numerous other means of getting the job at hand accomplished with minimum delay.

With full management backing, the program showed results quickly and gained momentum as the weeks passed.

One key tool set up was a Centaur Control Center with branches at San Diego and Cape Canaveral. It compiled and presented reports on every phase of the program. It became a ready reference point for those involved and a key attraction to important visitors.

(Continued on Page 2)

Astro Club Will Pay Toastmaster Fees

Astronautics Management Club will pay a $6 initiation fee for the first 25 club members applying for membership in the Dynamics Toastmasters Club (457).

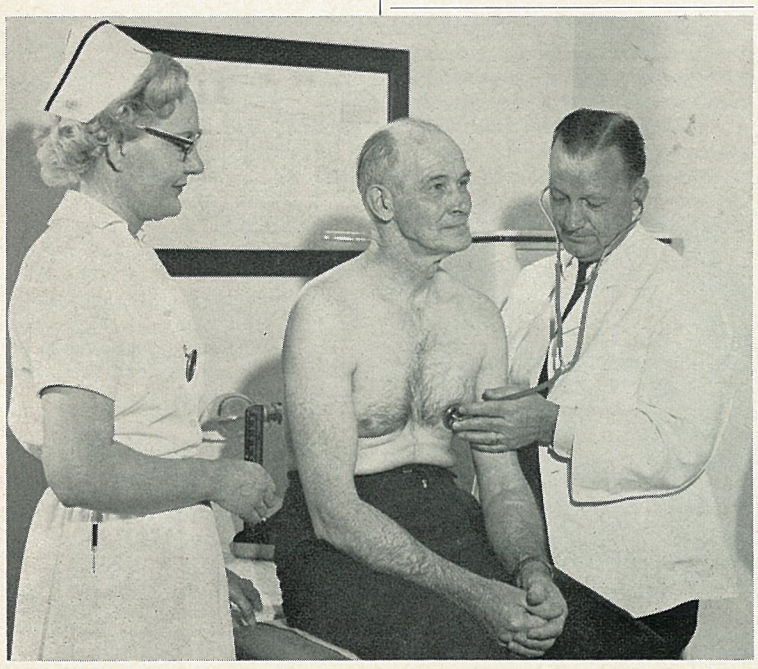
This group is open to all General Dynamics Corporation employees in the San Diego area. Information is available through Jim Duffy, ext. 1543; Ray Sodomka, ext. 378, Plant 2; or Cy Campbell, ext. 2500, all of Astronautics.

Master Move Group Headed by Davant

J. K. Davant, manager of resources planning and control, has been named chairman of the master move group at General Dynamics/Astronautics.

Reporting to G. M. Robertson, director of management systems, Davant replaces Charles Marvin who has retired.

NEW OFFICERS—Framed by window in one end of ARA Clubhouse are new officers to be installed by ARA during April. From left, Bryan Weickersheimmer, president; Ezra Johnson, vice president; Marty Stutz, treasurer; Ken Rinker, secretary.



BREATHE DEEP—Free physical check is part of GD/Astro pre-retirement program. Dr. A. J. Bellanca, chief physician, examines Ira Keith, due to retire in fall. Helen Flanagan, head nurse, is at left.

Club's Ladies Night To Hear Film Star On Anti-Communism

Ronald Reagan, motion picture and TV actor, will be featured speaker at GD/Astronautics Management Club's "Ladies Night" at Hotel Del Coronado, April 11.

Reagan, an active anti-communist lecturer, will take this theme for his comments. Special guests will be members of two Management Club-sponsored Junior Achievement groups.

E. A. Reynold's product support department is sponsoring the program, with Lou Muller, general chairman; Tom Fleming, arrangements; Bill Ketchum, publicity; Dick Bogardus, entertainment; and E. A. Perryman and Lee Adams, raffle and hostesses.

Bryan Weickersheimmer Voted New ARA Council President

Recreational service to General Dynamics/Astronautics totaling almost 16 years is reflected in a veteran slate of ARA Employees' Council members named to office by ARA for the coming year.

New officers taking over ARA reins during April include: Bryan Weickersheimmer, president; Ezra Johnson, vice president; Ken Rinker, secretary; and Marty Stutz, treasurer.

Johnson, Stutz and Weickersheimmer were active when the ARA Council was formed in 1958 (April). Rinker joined the Council a few months later. All have served ARA since then.

Editor of **General Dynamics NEWS** at Astro, Weickersheimmer is a member of Dept. 130-0.

For the past two years he has been ARA secretary. He organized ARA's ballroom dancing program and still serves as commissioner of that group, as well as co-commissioner of the AR-Aiders. A 12-year General Dynamics veteran, he worked with Councils at GD/Convair and GD/FW before moving to Astro.

Johnson (Dept. 401-4) is a tooling supervisor. Active in Gun Club affairs at GD/Convair, he organized Astro's Gun Club and still serves as its commissioner. Logging more than 400 hours of volunteer work in the ARA recreation area, Johnson served as chairman of the group that handled most of the initial

(Continued on Page 2)

Log Book Entries

Promotions

MAIN PLANT

Promotions to or within supervision effective March 12.

Dept. 101-1, Business Data Processing: To data processing supervisor, J. Cox.

Dept. 143-7, Inspection: To test data evaluation supervisor, R. J. Lightner. To inspection asst. supervisor, G. H. Zoellner.

Dept. 170-1, Organization and Systems: To supervisor, N. C. Travis.

Dept. 175-0, PACE Services: To PACE program supervisor, M. Tilaro.

Dept. 191-0, General Accounting: To clerical asst. supervisor, C. L. Tinker.

Dept. 210-0, Operations Estimating and Forecasting: To factory methods supervisor, C. M. McKenzie.

Dept. 223-2, Production Control: To foreman, M. W. Glithero.

Dept. 322-8, Support Publications: To asst. supervisor, J. H. DeKerguelen, A. Cohen.

Dept. 343, Support Manufacturing Control: To GFE asst. supervisor, C. F. Lewallen, L. R. Nieder.

Dept. 344-2, Support Operations: To asst. foreman, F. L. Trower.

Dept. 350-1, Support Field Operations: To modification planning and scheduling asst. supervisor, C. H. Wilson. To calibration analysis and control supervisor, W. J. DeLaFont Jr.

Dept. 510-6, Engineering Management: To asst. project engineer, R. L. Shoff.

Dept. 521, Engineering Administration: To engineering planning and estimating asst. supervisor, J. E. Green. To engineering services asst. supervisor, M. P. Traupel.

Dept. 531-3, Systems Design: To asst. design group engineer, D. A. Seabaugh, E. Wasserman.

Dept. 539, Activation Engineering: (Walker AFB) To activation engineering asst. supervisor-base, L. E. Edgar, R. F. Elbert, N. F. Peters. To activation engineering asst. supervisor, J. T. Lumgair, M. J. Peacock, J. E. Whitsitt. To design group engineer, C. B. Chalmers, M. R. Pilcher, C. K. Witt. (Schilling AFB) To design group engineer, W. H. McAfee.

Dept. 781-0, Electronics Manufacturing: To foreman, A. Kirinich. To asst. foreman, A. R. Gaxiola, T. E. Reed.

Dept. 782-0, Electronics Manufacturing: To foreman, W. R. Skinner.

Dept. 783-0, Electronics Manufacturing: To tooling supervisor, E. G. Gray. To asst. foreman, I. R. Kelly.

Dept. 832-1, Procurement Planning: To material control supervisor, F. W. Buehler Jr., J. D. Wiley.

Dept. 851-3, Material Services: To clerical supervisor, L. R. Hensley.

Dept. 951, Centaur Technical Control: To asst. project engineer, D. L. Hodson, J. W. Vega, E. D. Webb, H. E. Shaw Jr., A. B. Yanke.

Dept. 953, Centaur Program Control: To master schedules supervisor, W. C. Hill.

Dept. 954, Centaur Program Control: To manager of financial control, J. C. Cannady.

Dept. 955, Centaur Program Control: To manager of contracts, T. C. Courington Jr.

Dept. 972, Centaur Manufacturing Operations: To foreman, J. V. Neal.

AFMTC

Dept. 571, GD/Astronautics Operations: To test conductor, L. P. Cole, O. H. Reed.

ALTUS AFB

Dept. 617, GD/Astronautics Operations: To timekeeping asst. supervisor, G. C. Ross. To asst. foreman, F. V. West. To production control asst. foreman, F. D. Lindquist. To inspection supervisor, D. N. McLain.

DYESS AFB

Dept. 618, GD/Astronautics Operations: To scheduling and analysis supervisor-base, J. L. Doherty. To inspection asst. supervisor, T. W. Boman, D. R. Donald, W. J. Minor.

LINCOLN AFB

Dept. 616, GD/Astronautics Operations: To chief of cost control-base, J. H. Walk. To cost control supervisor, E. F. Bartok. To buying supervisor-base, E. A. Brownell. To inspection asst. supervisor, H. M. Coates, J. E. Harris. To asst. foreman, L. Humphrey.

SCHILLING AFB

Dept. 615, GD/Astronautics Operations: To asst. foreman, L. R. Williams.

WALKER AFB

Dept. 619, GD/Astronautics Operations: To safety supervisor, G. R. Coen. To MAB supervisor, G. M. Esslinger. To launch complex asst. supervisor, J. R. Dent. To production control asst. foreman, R. J. Gregorich, J. H. Lewis.

Personals

MAIN PLANT

We gratefully acknowledge the kind expressions of sympathy on the part of GD/Astronautics employees during our recent bereavement.

The family of Achilla Devloo, Dept. 250-4.

Deaths

MAIN PLANT

CLEM—Patricia N., Dept. 333-2. Died March 19. Survived by parents, Mr. and Mrs. Harold E. Clem.

GIZINSKI — Lawrence, Dept. 773-0. Died March 5. Survived by wife, Rosalie.

O'BRIEN—Richard C., Dept. 250-2. Died March 17. Survived by wife, Edith.

TEMPLE—William C., Dept. 756. Died March 12. Survived by daughter, Cheryl, 11; son, William C., 15.

Service Emblems

MAIN PLANT

Service emblems due during the period March 16 through March 31.

Twenty-five-year: Dept. 331-2, J. C. Ruzich; Dept. 780-0, F. B. Kemper.

Twenty-year: Dept. 222-2, Ruth C. Ribby; Dept. 223-3, Salomon Chavez; Dept. 452-0, G. M. Churness; Dept. 521-6, K. H. White; Dept. 522-4, T. H. Brunner; Dept. 732-0, D. W. Keaton.

Fifteen-year: Dept. 222-2, H. F. Clark, H. A. Hoch; Dept. 404-0, Lawson Rollo Jr.; Dept. 597-3, A. C. Tejada.

Ten-year: Dept. 141-1, J. R. Frogge; Dept. 152-0, W. H. Walker; Dept. 321-5, M. D. Hart; Dept. 322-6, D. H. Moberg; Dept. 337-0, L. E. Staggs; Dept. 343-1, F. E. Allen, T. E. Garrett; Dept. 404-0, G. O. Gire; Dept. 451-0, Raymond Stapp; Dept. 454-0, A. M. Fullarton; Dept. 535-5, G. D. Clapp; Dept. 547-2, E. A. Littlefield; Dept. 581-1, H. S. Gault; Dept. 593-2, F. P. Scaletta; Dept. 756-0, M. A. Talmich; Dept. 759-0, Vincenzo Minuto; Dept. 771-0, P. R. Adams; Dept. 773-0, G. L. Sapp; Dept. 781-0, G. F. Koehler; Dept. 811-2, C. A. Lynch; Dept. 832-1, G. D. Vaughan.

ALTUS AFB

Twenty-year: Dept. 617-4, R. C. McKay.

DYESS AFB

Ten-year: Dept. 618-8, J. W. Rand.

SCHILLING AFB

Twenty-year: Dept. 615-2, J. D. Parnell.

Ten-year: Dept. 615-3, R. S. Vernor.

SYCAMORE

Ten-year: Dept. 573-1, C. L. Frasher.

VANDENBERG AFB

Ten-year: Dept. 576, W. W. Elkins, W. D. Maxie.

WARREN AFB

Ten-year: Dept. 611-5, Irene S. Frowiss.

Births

MAIN PLANT

HONE—Son, Michael Stephen, 7 lbs., 11 oz., born March 10 to Mr. and Mrs. G. D. Hone, Dept. 322-7.

STEADMAN—Son, Christopher Glenn, 6 lbs., 7 oz., born Feb. 20 to Mr. and Mrs. Loren E. Steadman, Dept. 124-0.

SCHILLING AFB

COX — Daughter, Kimberly Ann, 7 lbs., born Feb. 12 to Mr. and Mrs. I. D. Cox, Dept. 615-2.

ARA Council Elects Officers

(Continued from Page 1)

development of the area. He was instrumental in work on the Gun Club facilities shared jointly by Astro and Convair.

Johnson was the first recipient of the ARA "Award of the Year." Weickersheimmer won the honor the second year. Stutz is one of three candidates for the award this year and was a candidate in other years.

Rinker is a field engineer for reliability control, working in a factory assignment for Dept. 145-8. He was instrumental in organizing Astro Lens, ARA camera club. One of the top amateur photographers in the area, Rinker has served several state and national organizations as an officer and board member.

Stutz is a tooling department foreman in Dept. 452-0. He was a commissioner of square dancing at GD/Convair and organized Astro's square dance group, the Astro Nauts.

GD Corporate Offices Consolidated in N.Y.

(Continued from Page 1)

move plans had been detailed.

* * *

Harlon D. Filloon, director of industrial relations at GD/Pomona, has been named Corporate Director of Industrial Relations for General Dynamics.

Filloon assumed his duties last week at the Corporate office in New York.

Filloon joined Convair in 1942 in industrial relations, was wage and salary supervisor when appointed manager of industrial relations at Pomona in 1951.

PATIENCE PAYS—Mr. and Mrs. Raymond Cormier of Astro force at Plattsburgh AFB show youngsters finer points of ice fishing on Lake Champlain, across road from their home. Mrs. Cormier knitted sweaters family wears. Children are, from left, Michael, 7, Susan, 10, Pamela, 9, and Joey, 5.

Knitting Needle Clothes Family

PLATTSBURGH AFB — A General Dynamics/Astronautics wife's hobby—knitting—and her family's idea of recreation—anything outdoors the year around—go hand in hand here.

Eleanor, wife of Raymond J. Cormier, GD/Astro assistant foreman at Site 2, started knitting argyle socks 16 years ago. She then switched to sweaters and has found her hobby even more helpful in clothing a family that includes her husband, two sons and two daughters.

It takes her about a week and a half to turn out one sweater.

Constant comments on the family sweaters led her into another angle—picking up pin money by knitting for others, on order. She now finds she has about as many orders as she can fill, but takes on new challenges for future work.

The Cormiers came here last April from Spokane where Cormier helped activate Fairchild AFB Atlas facilities.

They live at Rouses Point, north of this base and just across the highway from Lake Champlain. This winter the family is spending all its spare time ice fishing. When the lake thaws they look forward to resuming fishing and water skiing behind the family's 16-foot inboard.

Originally from San Diego, the Cormiers have enjoyed the chance to live in both Spokane and Plattsburgh.

Physicals Offered Astro Pre-Retirees

(Continued from Page 1)

Following this are checks of eyes, ears, nose, throat, teeth, blood pressure and electrocardiograms. More time is taken for an audiogram (hearing check), X-ray, urinalysis, etc.

Then comes a discussion of the findings with a physician and recommendations which the patient may want to follow through his personal physician.

Arrangements for the check-ups may be made through Keith Sears, employee services supervisor.

F-1 Control Team Plays Key Role With Centaur

(Continued from Page 1)

At San Diego some 28 men worked with the team from time to time, although a smaller group participated consistently. Included were Capt. Richard Campbell and Ronald Rovenger, representing NASA, and the following Astro personnel: M. R. Barlow, project office; W. B. Barth and W. J. Robinson, production control; C. J. Bourke, tool and operations planning; T. G. Fleming, product support; B. A. Lambert, change administration; A. H. Muller, field test support; J. Puhr, engineering; J. S. Randazzo, material; and W. H. Rumbaugh, operations.

Jackson had "on call' the entire Complex 36 team to utilize as needed. Additionally, other San Diego-based groups have supplied personnel (35 to 40 design engineers) to assist in Florida.

Participating in team meetings at Florida were Dewey Childs, launch operations director, and Ed Matthews, project coordinator of NASA; Astro Test Conductor Ernest Baldini, Tom Chitty and Jack Miller, assistant test conductors, and Ken Bracken from material functions.

Last week final meetings were held by both groups. Centaur work is now centered in an Astro organization headed by Grant L. Hansen, vice president and program director—Centaur.

"This group has filled a very critical need in the Centaur program and has done an excellent job in providing close coordination, monitoring and expediting of major milestone effort," Hansen said. "In the future our line project organization can fill this need."

"HELLO CAPE"—Expediting Centaur work has involved members of special team at San Diego, Cape Canaveral. Joint meetings were possible through unique communications system. (Note speakers on desk.) Key figures include, from left, Capt. Richard Campbell, NASA, M. R. Barlow, W. R. Jackson and F. X. Marshall, all GD/Astro.

Six 'Safe' Drivers Receive Recognition For Accident-Free Years at Sycamore

Six drivers at GD/Astronautics Sycamore Canyon operation received safe driving awards from P. T. Gardner, base manager, recently.

Top award of a five-year pin went to B. J. "Bernie" Nichols, "semi" operator, who has averaged 22,500 miles per year of accident-free driving.

Receiving two-year awards were A. R. Canales, R. V. Garza, G. J. Monk, H. R. Riley and J. L. Wilburn.

Drivers receiving the awards have not caused an accident, damage to vehicle, facility, equipment or materials; have not received a traffic citation; and have practiced good safety habits during the award period.

TOPS ON ROAD—Sycamore drivers are shown with Manager P. T. Gardner, left, following presentation of safe driving awards recently. B. J. Nichols, second from left, received five-year award, while R. V. Garza, H. R. Riley, J. L. Wilburn and G. J. Monk received two-year pins. Not shown was A. R. Canales.

Saturday Schedule For Salvage Set

Saturday sales schedule for GD/Convair and GD/Astro salvage yards is:

GD/Convair—March 31 and April 14.

GD/Astro—April 7, 21.

Both yards are open to General Dynamics employees from 8 a.m. until noon on alternate Saturdays.

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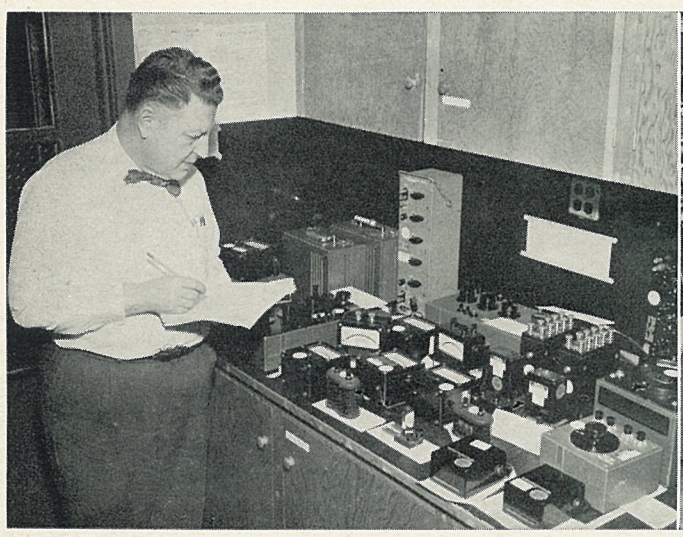
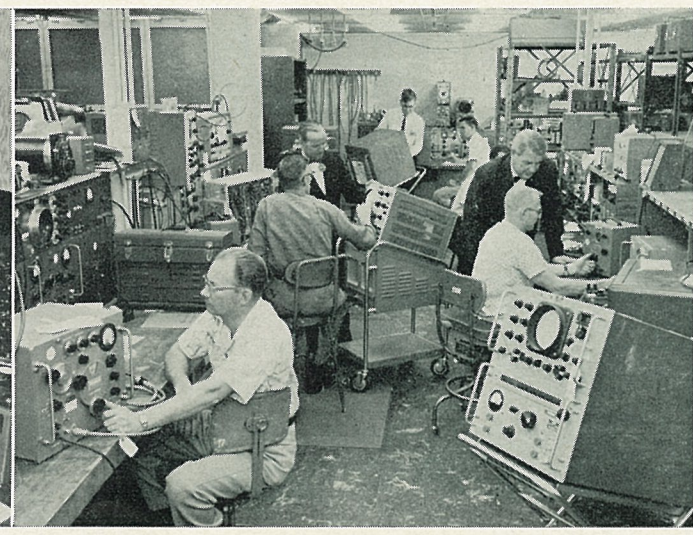
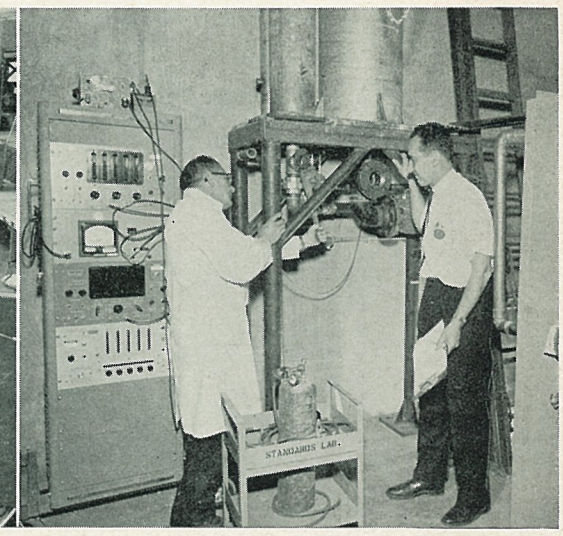
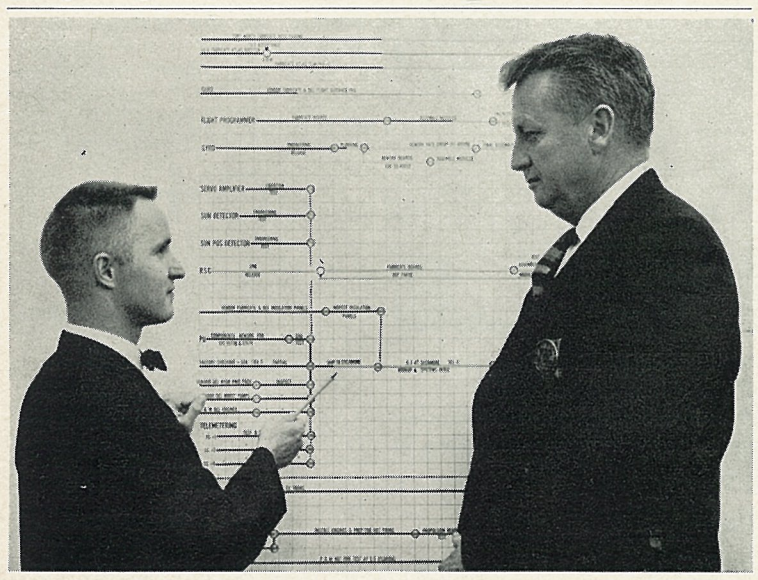






POTENT POTENTIAL—GD/Convair Standards Laboratories boast varied capability. In center is small part of test equipment calibration section. In photo are Warren Grimmett, M. B. Koenekamp, Henry Eichenberger, in charge of area, George Bergant, Ruben Diaz, Nick Kotsovos, behind W. R. Holmes, head of labs, Merle Hearn. At left W. A. Dershem checks in electrical items—resistors, voltmeters etc.—awaiting calibration. At right Roy Ramage tightens piping on new fuel stand, watched by E. K. Ames, in charge of equipment analysis. Standard flow test stand will be one of first of its kind.



PERT PATH—Norbert Nizze, PERT coordinator for Centaur, discusses highly simplified master PERT chart with R. T. Lyles, manager of schedule planning and control. From master chart, each step in production is further identifed in detail.

Divisions Apply System Of Charting to Keep Up With Complicated Task

Planning a meal or building a house works better with a system.

And to handle space-age industrial projects involving thousands of persons in hundreds of working groups with economy and efficiency, a functional system of management and control is an essential!

PERT (Program Evaluation and Review Technique), now in use at General Dynamics divisions including GD/Astronautics, GD/Pomona and GD/Fort Worth, is such a system.

At Astronautics it is being applied successfully to tasks ranging from production of Centaur launch vehicles to Atlas ICBM base activation and product support activities.

In one of many applications, PERT is a schematic illustration of the path a product follows from drawing board until delivery to a customer, and charting this path (called a "network") is the first move in applying PERT to any project.

The network comes into being at a project's inception, when representatives of all major groups developing or supporting the program meet, analyze project requirements, and define their responsibilities in filling these needs. Finally, they set up a schedule for each task.

Each major step (or "station") in the network they establish represents one job. This job's position in the network is determined by its relation to other jobs: which jobs must be finished before this one can be started; which ones can be accomplished while this job is in progress; and which work cannot start until this job is complete.

In final form the network sometimes consists of several thousand events for a complex project, and to handle this multitude, PERT calls on GD/Astro's IBM 7090 computer to serve as "secretary" and "memory" for the program.

PERT has been used at GD/Pomona for more than a year, and is applied to all engineering research and development. The program is ramrodded by planning and scheduling group, headed by George Simpkins. Training in techniques has been in progress for more than a year and a half.

Information about each task is punched into a card, and fed into the computer. When data on the entire network is "digested," the computer prints out a task-by-task report showing schedules for work completion and spotlighting problem areas, should any fall behind these schedules.

Changes can be entered in the network at any time, and because reports are issued at least every two weeks, management is provided with a constantly up-to-date picture of project status. They can plan to divert resources to solve problems predicted up to several months in advance!

GD/Astro has used PERT since mid-1960 when the system was first applied to Atlas ICBM base activation. Warren (II) AFB was "PERTed" first, followed by Offutt AFB, and the system was subsequently expanded to all "E" and "F" series bases where it has received official Air Force recognition.

The system's extreme value lies in its "report back" and reaction capability. For example, each base files a complete report on all complexes every two

(Continued on Page 4)

"This should help our team."

Dynamics Standards Lab Capability Available to Industry, Military

Services of General Dynamics/Convair's long-established Standards Laboratories — which can calibrate everything from Geiger counters to weighing kits for the Atlas missile and silos — have been made available to private industry and military organizations.

Now, at least 30 companies in the Southern California area are taking advantage of the vast assemblage of precision measurement equipment used for both large and small calibration and repair tasks.

All of the 5,000 instruments used throughout GD/Convair plants are calibrated on a regular schedule by the staff of 70 engineers and instrument technicians. In addition, all calibration for GD/Electronics facilities at San Diego is channeled through the GD/Convair labs, as well as a portion of calibration work for GD/Astro and General Atomic.

"We have, without question, one of the best-equipped calibration facilities on the West Coast," stressed W. R. Holmes, head of the Standards Laboratories.

"Years of experience in the maintenance of exacting standards for thousands of pieces of laboratory, factory, and field equipment have endowed the GD/Convair laboratories with outstanding capability in all phases of calibration," he continued.

The primary standards laboratories certify 1,500 standards. Many of these go back to the National Bureau of Standards for exact calibration. And, one standard used in the electrical lab is so delicate that it must be hand carried. It is a bank of six standard voltage cells from the large sealed standards cell which is flown to Washington, D. C. every year or two carefully held on the lap of a messenger. Although the standards cell, used to check reference standards for voltage calibration, can go years without variation, explained E. K. Ames, in charge of equipment analysis, it is regularly checked with national standards to assure positive FAA and military certification.

Complete primary standards laboratories, all on the ground floor of Bldg. 51, Plant 1, include electronics, electrical, physics laboratories, and a flow laboratory, commonly known as the "boiler room."

The test equipment calibrating laboratory (in which more than 40 technicians calibrate actual test equipment such as that used to test planes and components, radar test equipment, meters, gauges) is on the floor above.

Work there is under responsibility of Henry Eichenberger with George Bergant, assistant supervisor.

The primary laboratories calibrate all of the standards used in the test equipment calibrating laboratories for direct calibration of equipment.

The four primary standards labs cover a wide range of capabilities under direction of W. A. Dershem.

Work in the electronics lab includes measurement of microwave and high frequency power for test sets used to calibrate search, weather, and gun-laying radar equipment for power and range. All frequency meters are calibrated against a frequency standard accurate to five parts out of a hundred million! The lab's frequency standard is checked daily with signals and time

COMING UP—W. A. Dershem raises solid concrete block off nuclear source vault in Standards Laboratories at San Diego. Geiger counter in foreground records radiation.

ticks originating at National Bureau of Standards' transmitter. Signals are picked up at GD/Convair by the Bureau's WWV receiver to check time on a constantly-running clock.

In one recent week the clock gained but five-thousandths of a second. Variation over a week is always within .03 second, or never more than one second in eight months.

Work in the electrical lab is devoted to voltage, current, power, ratio, and resistance, both D. C. and A.C. Precise measurements can be made from one microvolt (equal to a millionth of a volt) to a high of 60,000 volts.

The physics standards section deals with all types of physical measurements — temperature, light, weights, lengths, nuclear work, vibration.

Here, weights from fractions of a gram—so tiny tweezers must be used for handling—to load cells with a force of 400,000 lbs. can be calibrated. Several sets of four 250,000-lb. load cells used in weighing the Atlas missile were calibrated.

"We don't know of any other West Coast laboratories that can handle weighing kits of this size, even the company which manufactures them," said Ames.

Samples of Cobalt 60 are used in calibration of radiation indicators, and test equipment for radioactive materials. The thermonuclear sources are kept in a reinforced concrete vault.

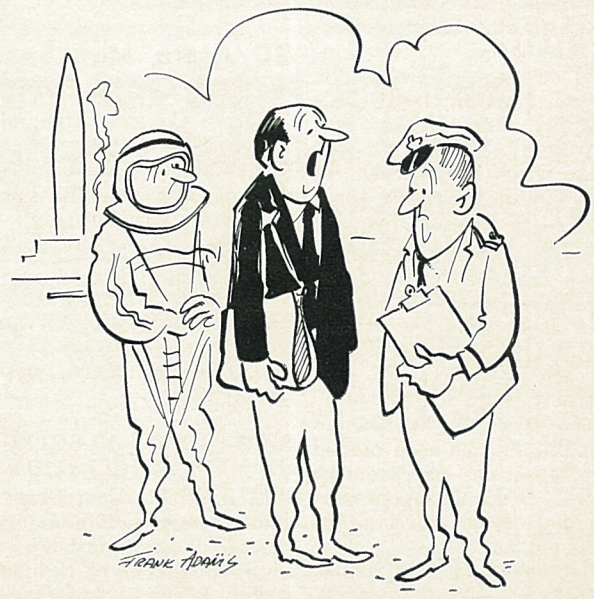
Temperatures to 3,000 degrees F. can be measured to within a two-degree accuracy. Temperatures from 300 degrees below zero F. to 800 above can be maintained at a .04-degree accuracy.

One of the most precise test equipments, a vacuum stand of GD/Convair design, produces low vacuums to a millionth of a millimeter of mercury—equivalent to 150 miles altitude.

A future installation will enable technicians to bring pressures down to as low as a billionth of a millimeter.

Air and oil flow is measured in the flow lab at the northwest corner of Bldg. 51. Air flow is measured by a test setup using oil sealed volume measuring tanks with capacity up to 10-cu. ft. volume. Here liquid flow meters, as large as 300-gal. per minute capacity, can be calibrated.

In the construction process is a standard flow test stand in an adjacent explosion-proof room. It will be used for such fluids as JP-4 fuel and Stoddard solvent. The stand, which will be in use by early summer, will be one of the very few in existence.



"He'd feel a lot better about launching into space if he could walk around and kick some tires before he takes off . . ."

CONTACT—James Lambright, GD/Astro assistant foreman at Altus AFB, readies commuter plane for 20-mile trip between Atlas missile site and home. He flies both ways each day. Note launch complex in background.

GD/Astro Commuter Soars Over Traffic en Route to Astro Base

ALTUS AFB — Laughing at traffic jams is a favorite pastime of James Lambright, General Dynamics/Astronautics assistant foreman here.

That's because Lambright is seldom in a traffic jam. He's above them as he flies the 20 miles between his home at Altus and his job at an Atlas launch complex near Snyder, Okla.

His Cessna 170-B allows him just a little more sleep in the mornings and additional time in the evenings with his family, including sons Terry, 10, and Richard, 16.

A veteran of nine years with General Dynamics, Lambright bought his present plane in 1957 while working for GD/Convair at Edwards AFB.

Lambright sets his plane down on a small landing strip, just a few steps away from the Snyder Atlas complex.

Lambright traces his love of flying back to the Navy where he served as an aircraft mechanic.

PRINCESS KATHLYN—Mrs. James Mathis, wife of a GD/Convair field service rep, receives homage from Kirchberg, Germany, townspeople as she reigns as Princess of pre-Lenten celebration. Prince was Herr Erich Best, Kirchberg pharmacist.

Wife of GD/Convair Service Rep Honored by German Townsfolk

A General Dynamics/Convair wife has the top honor of being the first American woman ever chosen to reign over the annual "Fasching," pre-Lenten celebration in Kirchberg, Germany.

Mrs. James Mathis was crowned "Princess Kathlyn" for the town at the huge ball celebrating the opening of the season in mid-February. Mathis is based with the 496th Fighter-Interceptor Squadron at Hahn Air Base, outside of Kirchberg, as GD/Convair field service representative.

"Princess Katrina from Kalifornien," as Mrs. Mathis was called, won the hearts of the townsfolk with her speech in their own language lauding them for their hospitality and friendliness to the Americans living there.

Mayor Rudy Koppke presented her the key to the city, saying, "Princess Katrina, your courage to appear here and your efforts to learn our language have already won the admiration of our citizens, plus your loveliness, owes extreme recognition."

Fasching is observed throughout the Catholic-populated areas of Germany during the whole period before Lent. The word is derived from "faseln,"—to play pranks—and is a time of merry-making and fun.

Gilliland Appointed To Post at GD/Astro

R. H. Gilliland has been named chief of inspection—procurement at General Dynamics/Astronautics by P. I. Harr, director of reliability control.

Gilliland reports to D. R. Archibald, manager of quality control. He replaces C. C. Flagg, who has retired.

GD/Astro Men Serve In Red Cross Drive

Three General Dynamics/Astronautics members of the San Diego Chapter, National Association of Accountants, served as volunteer campaigners during the recent American Red Cross fund drive.

Len Egerer (Dept. 193-0), Ken Keown (Dept. 193-2) and Joe Sanderson (Dept. 193-1) work in the drive's commerce and industry division.

RICHARDSON ELECTED BY MFG. ASSOCIATION

L. B. Richardson, General Dynamics consultant and long time executive, this month was elected a vice president of the Manufacturers Aircraft Association. He is also a member of the MAA board.

Divisions Apply Chart System To Check Complicated Tasks

(Continued from Page 3)

weeks, and reports on its lead installation weekly. Each report provides for a complete re-evaluation of the total program.

Latest development in PERT is now being applied at Plattsburgh AFB where direct telephone lines between the base and GD/Astro's home plant enable computers to send PERT cards station-to-station in a matter of seconds.

Plattsburgh now files daily reports on all jobs completed, and reports on in-work items each week.

R. M. Jirgal, Dept. 603, who heads PERT operations for base activation, said use of the system resulted in "surprisingly accurate" forecasting.

"Our approach to PERT has many potential applications," he added. "It provides improved scheduling capability, and maximum support for field operations."

Jirgal also teaches a UCLA extension course in PERT—the only public class in the subject in the San Diego area.

Larry Chambers, Dept. 302, coordinates PERT operations for product support, which uses the system in Golden Ram follow-on, "E" series up-dating, the technical manual program, etc. Norbert Nizze works with the Centaur project; Dave Raney with new proposals; and Doug Platt in master scheduling.

C. R. Walker Jr., manager of program planning and control (Dept. 152), coordinates PERT activities throughout GD/Astronautics, under G. M. Robertson, director of management systems.

GD/Astro educational services (Dept. 130-3) has conducted a four-hour class in PERT for over a year, thus far introducing more than 200 employees to the system. H. T. Sicard, assistant supervisor of professional and technical education, coordinates training, and J. P. Murray is instructor.

Visitor

Talleyho! Fox Finds Friend

Raymond Lucero captured the "brush" and all that goes with it in a fox hunt that took over Bldg. 3 at General Dynamics/Convair a couple of weeks ago.

Dozens of production workers joined with great zest in the chase to rescue a frightened, young red fox, which, in some unexplained way, had wandered into Plant 1.

The animal, only a few months old, was discovered dashing through the plastics production area of Bldg. 3 when the first shift reported for work. As he eluded everyone, Lucero hurriedly put together a make-shift trap box. He was finally confined with a great deal of shooing and urging.

Tidbits from the cafeteria kept him happy during the day. Lucero took him home to try to locate the owners. Consensus was that the little fox must have been an escaped pet. He will be turned over to the San Diego Humane Society if no one turns up to claim him.

FOXY—Raymond Lucero, GD/Convair Dept. 128, holds young fox captured in recent "hunt" within GD/Convair plant.

"BLESSED" EVENT — Tex and Millie Clements of GD/Convair proudly show off new daughter, Swiss baby they are adopting in Germany.

Daughter

Swiss Baby Girl 'Joins' Convair

A General Dynamics/Convair couple, based in Germany for the company, have really gone international with their adoption of a Swiss baby girl.

C. H. "Tex" and Millie Clements, native Texans, now living in Wiesbaden, Germany, are happily going through the process of acquiring 3½-month-old Christina Helene of Swiss parentage for their very own.

They have no other children.

Clements, who first joined General Dynamics at Fort Worth in 1945, has been stationed in Germany with GD/Convair field service the last three years. He has headed field service support activities in the European area since F-102s first went to USAFE squadrons in early 1959.

The Convair-built interceptors are being used by squadrons in Germany, Spain, and Holland.

Standards Engineer Heads Author Group In San Diego Area

Lowell Ward, assistant standards engineer at GD/Convair, has been elected president of the San Diego Scriptographers Club, group of professional authors.

Ward wrote the material used in four cartoon-type books published by Trend, Inc. Pete Millar, former GD/Convair technical illustrator, did the drawings.

At present Ward is working on material for a cartoon book devoted to trials and tribulations of Model A restorers, all in humorous vein.

Excited Passenger Delays 990 Flight

An unprecedented delay held up takeoff of a Swissair 990 Coronado from Zurich recently when a passenger mistook the emergency exit for a window!

He explained that he was just trying to get a little fresh air to recover from the excitement of boarding a modern jet for Buenos Aires.

It took just 19 minutes to replace the door and get the South American-bound jetliner on the road, reported Frank Laffoon, GD/Convair customer transport service rep based at Zurich.

Multi-Weapon Sonic Fatigue Test Conducted

Sonic fatigue testing of a simulated B-58 "multiple weapon" configuration, using a specially built Hustler "wing," is being carried out by GD/Fort Worth engineers in the modified jet engine test facility.

"We'll run the B-58 engine a total of 10 hours with maximum afterburner over the next few months to see if the airplane structure and the weapon system function normally with the new configuration," said Don Pray, senior structures engineer who is project leader.

He explained that 10 hours with afterburner is equal to 7,000 flying hours—approximately the life span of most jets.

"We'll also check out operation of electronic and electromechanical systems related to operation of multi-weapons," he said.

An acoustics expert, Pray contends that any new configuration change—such as that afforded by adding four external weapons (called "stores") under the B-58 wing—changes the acoustical environment.

"Obviously, we have to prove out the new configuration early in the program," he added.

Tests will be run in 15 to 30-minute spurts, probably through August. Evaluating and reporting will likely run to about November.

Engineers monitor tests from a nearby control room, equipped with a special data recording system capable of handling 150 channels of information.

Considerable modification work was done at the engine test facility to make this and other tests possible.

The acoustically treated exhaust section of the cell was converted to an environmental test facility by removing baffle walls and some of the water-cooling system. Structures were added on which various test specimens could be mounted.

"One of the major problems in this test has been development of instrumentation techniques to cope with extreme environmental conditions of the test cell," Pray said.

"This includes high intensity sound as high as 165 decibels—capable of destroying a conventional aircraft structure in minutes, temperatures ranging up to 300 degrees Fahrenheit, and high-velocity air turbulence and water spray caused as air escapes from the engine at Mach 2.

"For this test, we installed a major portion of the right side of the B-58 wing, including modifications associated with the multi-weapon configuration, in addition to a production-type rack and external store," Pray said.

Assisting GD/Fort Worth engineers in the test is Bill Sieger of Sandia Corp., Albuquerque.

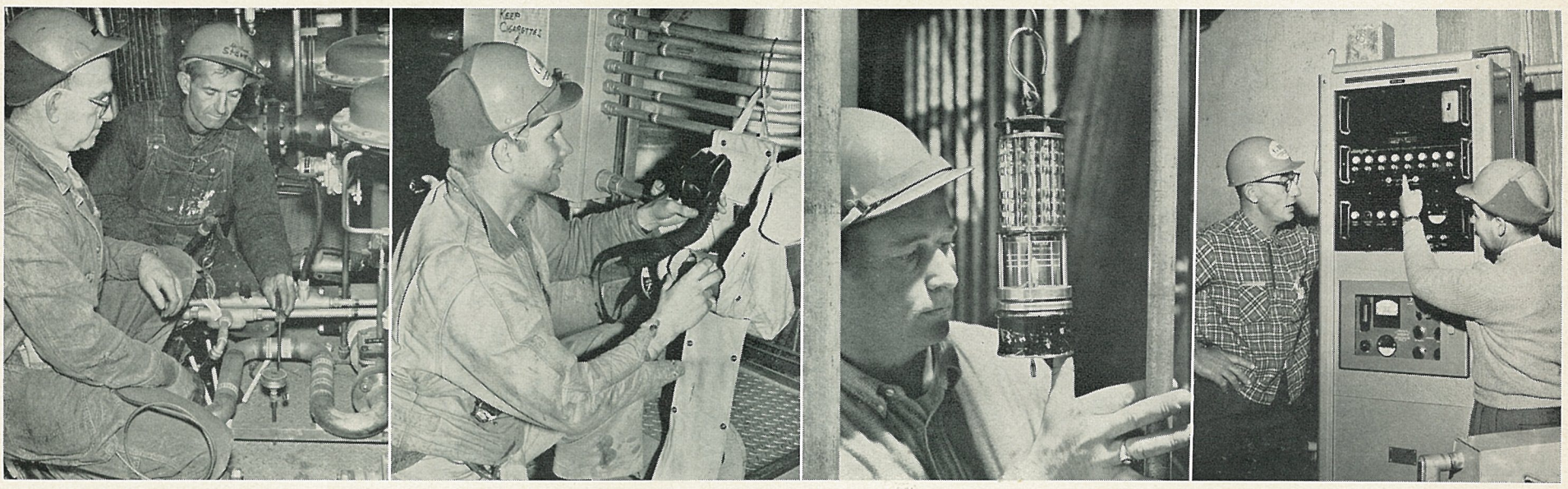
PURCHASE AGENTS PLAN 'BOSS' NIGHT

Russell T. Stark Sr., director of purchasing for the Burroughs Corp. and president of the National Association of Purchasing Agents, will appear April 4 before the Purchasing Agent Association of San Diego.

Billed as "Bosses' Night," the affair will be held at the Crystal Room, Grant Hotel. Among the 80 members of the local group are numerous General Dynamics Corporation employees. Each will bring his immediate supervisor to the dinner meeting.

As head of 17,000 members of the national organization, Stark is making a tour of the Western United States to visit local groups.

The meeting is open to interested persons. Further information is available through Frank Blakefield, GD/Astro buying supervisor, ext. 1005, Astro site, who is association director for national affairs.



PRECAUTIONS—GD/Astro takes extra care for health of those working underground at Atlas missile sites, by means of detection systems to check on proper oxygen supply and guard against gas. At left Jim Shipman and Paul Stevens at Schilling AFB inspect "sniffer." Second from left, R. H. Dopp examines oxygen equipment—ready, just in case. Next, B. C. McGowan checks lamp. Flame level is clue to oxygen content. At right V. Reed and M. T. Chase are beside electronic analyzer that triggers alarm in case of danger. Photographer Bill Touchberry made photos at Schilling. Lincoln, Altus, Walker, Plattsburgh, Dyess have such systems.

'Terrain Avoidance' Tried Out With B-25

A B-25 is flying over unpopulated areas near San Diego to actually test out, in flight, effectiveness of the "terrain avoidance" system, designed and developed by General Dynamics/Electronics at San Diego.

The simplified electronic flight system, designed to permit safe "ground-hugging" by any plane, has been installed in a leased B-25. Flight testing, which has been in progress the last two or three weeks, will be concluded within the next few weeks, said Roger Olson, project engineer.

The GD/Electronics system is designed to automatically keep a plane on its path, at all times maintaining a safe distance above any obstacle beneath. Development has been under way at the San Diego facility with an eye toward its possible value primarily for military aircraft.

During the last few months, sales teams have been surveying the potential market which would allow full-scale production. An advertisement describing the new concept is due to appear this month in national aviation magazines.

Assisting Olson in testing of the actual system, fabricated by GD/Electronics engineering model shop, are James Boelens and Mitsuo Ishihara, reporting to J. L. Brooks, chief engineer for airborne radar. Technician Ronald Bietz has been responsible for installation.

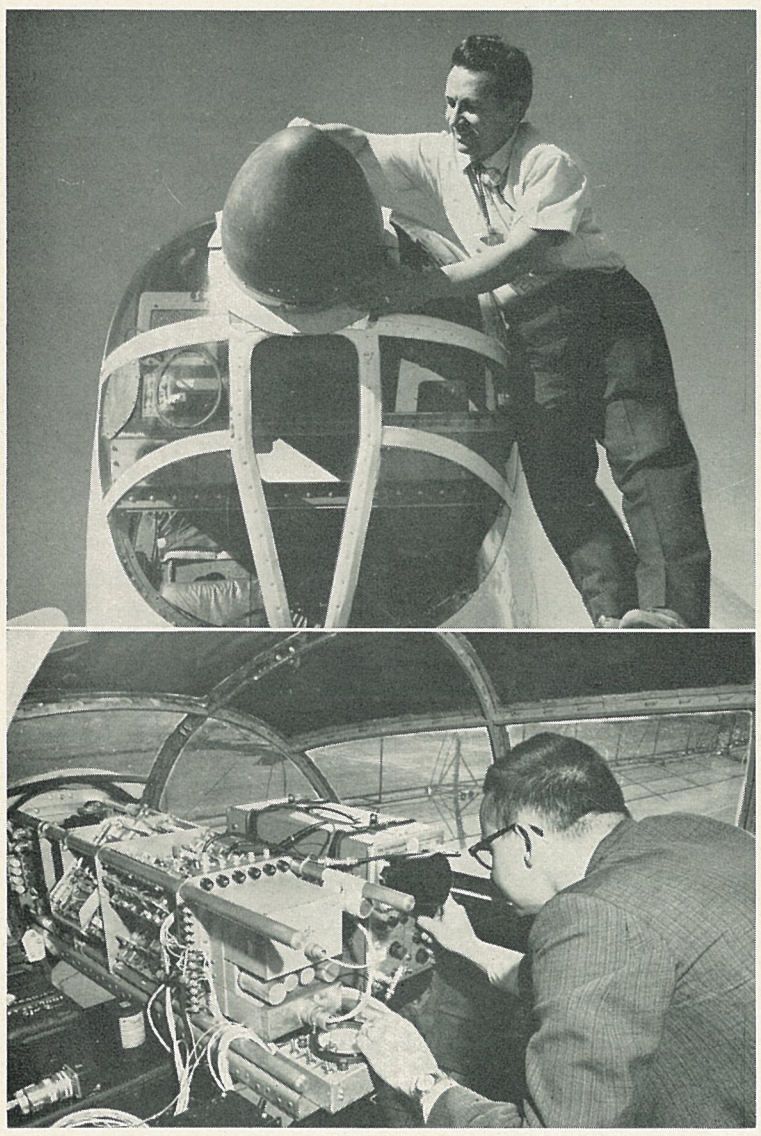
The B-25 being used for flight test is a privately-owned craft of Tallmantz Aviation Inc., located at the Orange County Airport. Jim Bissell, a Tallmantz pilot, has been at the controls of the plane during the flight program.

Pilots of Swissair Give 990 Workout

A Convair 990 being used for pilot training by Swissair at Arlanda, Sweden, is standing up under heavy workouts.

It is in use 11 to 12 hours a day for touch-and-go landing and takeoff training, making a landing on the average of every 18 minutes. In a recently-recorded 71 hours and 20 minutes, the 990 came down for 226 landings.

Swissair now has three 990s in service in addition to the 990 in pilot training. Two round trips a week are scheduled to Buenos Aires, South America, and regular runs between Zurich and Tokyo.



TRIAL RUN—Roger Olson of GD/Electronics at San Diego observes radar video on oscilloscope of "terrain avoidance" system being flight tested on B-25. Shot above shows Lee Noble, GD/Electronics technician, during installation of radome on test craft.

Granddaughters Born On St. Patrick's Day

While most folks "wear green" on St. Patrick's Day, Walt Hocker, GD/Astro Dept. 151-3, goes to the hospital.

A year ago on St. Patrick's Day his daughter, Mrs. Odessa Wright, gave birth to little Julie Ann. This year, on March 17, Hocker again visited the hospital where Mrs. Wright and another of his daughters, Mrs. Marilyn Steber, BOTH were delivered of baby girls!

GD/Fort Worth Cuts Light Bill For Jan.-Feb.

GD/Fort Worth saved $15,398 on its January-February electric bill simply by cutting lights off when they weren't needed.

That's the word from I. B. Hale, monitor for utilities overhead in the plant's 1962 conservation program.

"Our electric bill for the two-month period was $182,170," Hale said, "which is $15,398 below last year's electric bill for the same period—and the budget figure."

How did employees effect this sizable savings? Mainly by cutting out lights in areas where first-shift work had ended and no second- or third-shift work was slated, Hale said.

"Supervision helped further by seeing to it that power was turned off to machines and tools when not in use, and by reporting leaky air lines to maintenance at once."

Checking to make certain all air is cut off at distribution valves at end of shift has also helped check the upward trend in electricity costs.

The drive to cut utility expenses is part of a six-pronged attack on overhead expense in 1962.

Five other members of management are assigned to devote part of their time and effort to reducing costs in selected areas: J. Haynes, operating supplies and perishable tools, E. E. Hatchett, printed forms and stationery supplies, R. M. Gallagher, telephone and telegraph, R. W. Harwell, travel and per diem, and A. L. Barnett, material scrap.

"The importance of an even greater cost reduction effort during 1962 cannot be over-emphasized," President Frank W. Davis said in announcing the monitors earlier this year.

GD/Convair Son Wins School Scholarship

Les Hitchcock of GD/Convair motion picture section has good reason to be proud of his brainy family—both sons winning top scholarships in the last two years.

Following in the footsteps of his older brother, Dennis, 12, has been awarded a six-month scholarship to St. Augustine High School. He was one of 15 in the San Diego area to win one of the annual grants. Over 400 competed. Two years ago his brother Roger was awarded a one-year St. Augustine scholarship.

Air Samplers

Atlas Silo Crews Underground Protected by 'Sniffer' System

In the "good old days," nearly every mine was fitted out with safety lanterns—and a canary.

For General Dynamics/Astronautics employees activating "F" series Atlas ICBM "silo" sites, the lantern is still temporarily present.

Traditionally, the canary was placed in the mine to detect poisonous gas—if he "keeled over," the miners beat a hasty retreat. And so long as the flame burned steadily in the safety lanterns, plenty of oxygen was available.

Extensive air circulating and purification systems are a part of every Atlas silo installation today, and constant safety checks are carried out.

Still, during early days of installation and checkout (I&C), GD/Astro hangs regular miners' lanterns at various points throughout the Atlas silo.

The glass chimney of each is scribed with three rings, and while the flame burns at the middle one, all is well. Should it soar to the top ring, or smoulder at the lower one, there is an excess or deficiency of oxygen in the silo and corrective action must be taken.

In later stages of I&C an electronic combustible gas detector—a kind of "missile-age canary"—is installed, along with a similar oxygen detection unit which replaces the lanterns.

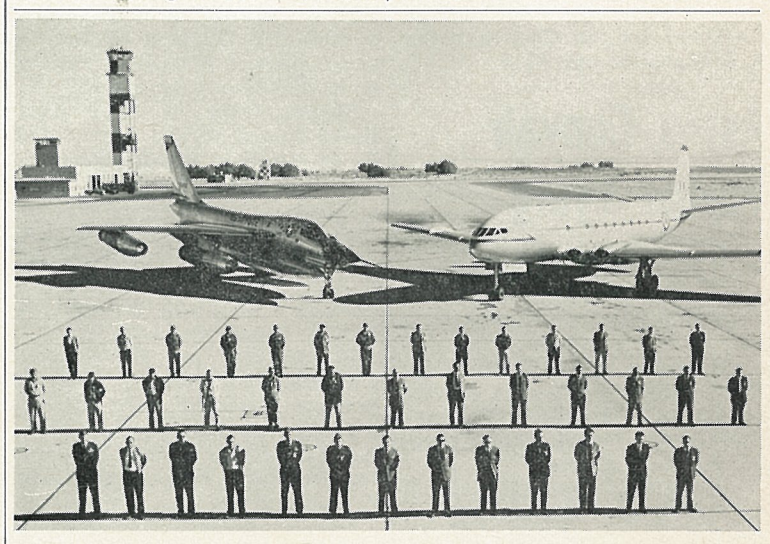
Both detection systems rely on "sniffers," sampling heads located throughout the silo. In the gas detector, for example, one sniffer is on the silo's first level, four on the seventh level, and two on the eighth.

These remote heads sample the atmosphere in their areas for 30 seconds and relay information to electronic detector assemblies where samples are automatically analyzed.

If the sniffers "smell trouble," the detector assemblies give visual and audible warning, turn on a silo exhaust system, and activate a fog-spray system to "wash" the atmosphere.

In addition to their other feats, the detectors have an added capability which justifies their presence—even for bird fanciers. In the old days, if a lantern flickered, or a canary succumbed when no one was looking, it meant trouble.

But should an electronic detector malfunction, it sets off its own alarm.



TEAM WORK—Joint United States-United Kingdom test force—including GD/FW maintenance crew—pose in front of B-58 No. 59 and British Comet I jet used in infrared-measurement demonstrations.

Hustler and Comet Jets Team In Infrared Radiation Study

A B-58 Hustler was teamed with a British Comet I-A jet at Edwards AFB recently to measure infrared radiation from supersonic aircraft.

During two months of testing, the Mach 2 Hustler made several close passes by the Comet I, which served as a flying laboratory. The British jet was fitted with special instrumentation and measuring equipment.

The program was a joint United Kingdom-United States effort.

Edward H. Cooper, Aeronautical Systems Division at Wright-Patterson Air Force Base, Ohio, and Lt. Col. Jerry F. Flicek, USAF officer serving with the British Ministry of Aviation, London, directed the program.

Majors Kenneth K. Lewis and Fitzhugh Fulton of Air Force Flight Test Center at Edwards were project engineer and pilot on the Air Force team.

C. W. Collins, Dept. 64, was crew chief of the GD/Fort Worth maintenance crew involved.

Crew members were W. C. Argabright, R. M. Crutchfield, W. I. Louis, N. L. Marr, M. O. Morris, J. M. Rayburn, O. A. Roberts, A. A. Tetterton, T. M. Tynes, W. H. Walker and J. A. Vastardis.

The entire crew had also served with No. 59 in a series of sonic boom tests at Edwards.

Hawaii Trip Begins June 13

Billed as "Eleven Days in Paradise," an ARA-sponsored Hawaii tour will get under way via chartered Pan American DC7C aircraft June 13.

Reservations for the trip, including transportation, hotel accommodations at the Reef Hotel on Waikiki Beach, and a variety of special events, are now being taken between 3:30 and 5:30 p.m. daily at ARA Clubhouse.

Total cost of the package tour is $299 per person and includes a tour of Oahu Island, an excursion to Mt. Tantalus, "native" luau feast, and Pearl Harbor cruise. Or travelers may elect to omit tours and luau, reducing cost of transportation and hotel to only $266.

The tour party will return to San Diego June 14.

A deposit of $50 will be required when making reservations, with final payment of the balance due not later than May 7.

Eligible for tour participation are those persons employed by GD/Astro for at least six months, as well as members of their immediate families.

If interest warrants, a second trip may be arranged for June 13 departure.

Skiers Name 'Commodores'

Interim officers, including two "Commodores" and six "Captains" were appointed at a recent meeting of ARA Water Ski Club to direct operations of the group until regular elections in June.

Jack Wachalec is club president, with Sam Pountney and Carl Johnson, commodores of operations and capital equipment, respectively.

Captains are Roberta Kunze (communication), Mary Farrell (organization), Clarence Wilson (arrangements), Roy Kirkeby (inboard), Paul Scharnau (outboard), and "Red" Grady (skis).

ARA Commissioner Bill Johnson reported that the group is growing rapidly, with only a limited period remaining in which to accept new members for summer participation.

Next registration of new members will be held at the group's meeting at 7:30 p.m., April 11, in ARA Clubhouse. Additional information on Ski Club activities is available at ext. 1111.

Astro, Convair Teams Vying

Ten teams will vie in a two-league IRC volleyball tourney going into action next week, said Pete Beyrer of CRA, who is in charge.

Six teams will compete in the Wednesday night league playing at Balboa Park's Muni Gym, and four in the Friday night league on the same courts.

Included are two GD/Convair teams, Convair Engineering and Spacemen. Astro teams are Astronets, Support Documentation, Hounds, Reliables, Project Support, and Design. Two teams made up of municipal employees are Park and Recreation and City Engineers.

Top teams from each league will play off for the championship.

'WEST SIDE STORY' BARGAIN OFFERED

A special showing of "West Side Story" will be held for GD/Astro employees at Capri Theater, 7 p.m., April 22.

ARA has arranged for a 30 per cent reduction in price for this movie, with loge tickets to be sold for $1.75. General admission is $1.40. All seats are reserved.

Tickets will be available tomorrow (March 29) between 11 a.m. and 1 p.m. at employee services outlets.

UPSTATERS—Officers of GD/Astro Wives Club at Plattsburgh AFB pose. They are, from left, Evelyn Killian, recording secretary; Joan Messacar, corresponding secretary; Virginia Owston, president; and Dinah White, treasurer. Not shown is Jane Metcalfe, vice president.

Fifty Guests See Fashions

PLATTSBURGH AFB — The GD/Astronautics Wives' Club has mapped out a full round of events to occupy spare-time hours of women in this area.

Regular club meetings are held the first Tuesday of each month. On the second and fourth Tuesday, afternoon hobby groups meet. A bridge group for mixed couples is held one Sunday afternoon each month. These are in addition to special events.

The March 6 meeting drew 50 guests to the base NCO Club for a fashion show narrated by Mrs. Helen Ott, wife of a GD/Astro man.

Models, all Astro wives, included Joan Messacar, Evelyn Killian, Cyndy Siegel, Syvilla Gilmore and Lillian Spindell. Edna Scanlon presented a special organ program.

Officers of the club include: Virginia Owston, president; Jane Metcalfe, vice president; Dinah White, treasurer; Evelyn Killian, recording secretary; and Joan Messacar, corresponding secretary.

'Music Extravaganza' Includes Show Tunes

Several General Dynamics employees will take part when Rhythm-Aire Players of Pacific Beach present a musical variety show, "Holiday with Music."

Curtain time is 8:15 p.m., March 30 and 31, and April 6 and 7, at Pacific Beach Women's Clubhouse, 1721 Hornblend St.

Billed as a "musical extravaganza," the show will include carnival time songs and dances of Latin America, blues from the American southland, as well as current Broadway show tunes.

In the cast are GD/Convair sons and daughters Alice Horn, Barbara Sneathen, and Robert Brisbin, and GD/Astro employees Ed Moores, Stan Medford, Joe Kraynak, Fern McCoy and Vi Pohlenz.

Tickets and additional information about the show are available from Medford, Astro ext. 3311 or 3312.

Hole-in-One Contest Offers $1,000 Prize

General Dynamics golfers in the San Diego area have been invited to enter a hole-in-one tournament at Stardust Country Club, April 6, 7 and 8.

Hours are from 8 a.m. until dusk each day, and three tries at the 120-yard hole cost $1.

Top prize is $1,000 plus trophy. Door prizes and awards for runners-up, as well as three trophies for junior golfers will be presented.

The event, endorsed by the Industrial Recreation Council, is sponsored as a benefit by "Las Companeras," volunteer auxiliary of Children's Home Society of California, a private adoption agency.

LUNCH FEATURES HAWAIIAN THEME

SCHILLING AFB—Next meeting of the Astronautics Wives Club here has been set for 1 p.m. April 12 at the Officers' Club.

March found 135 members taking part in a luncheon held at the Officers' Club. Featured were Hawaiian dance and vocal numbers presented by Capt. and Mrs. Holbrook DuPont. Mrs. John Taylor presented special vocal numbers, accompanied by Mrs. B. W. Barnett.

Hostesses were Mmes. Eugene Harmon, Floyd Jones, Neil Kidney and Kenneth Krueger.

Door prizes went to Mmes. K. Schmidt, Walter Rock, Harold Pack and Frank Lewis.

ARA Rose Show Slated April 15

Tips for prospective entrants in the forthcoming Rose Show will be discussed at a meeting of ARA Garden Club at 7:30 p.m., April 4 at the Floral Building, Balboa Park.

Committees will be established to assist in setting up the show, grouping entries in proper color classes, and advising those entering competition for the first time. The event will be held in the Floral Bldg., April 15.

J. E. Henderson, ARA commissioner, has announced that the club's shipment of imported dahlia tubers has arrived and members who placed orders can pick up bulbs at this meeting.

Miniature rose plants for those who ordered them will be available at the Rose Show. Henderson said a few plants will be available for purchase.

ARA Will Sponsor $25 Group Vegas Jaunt

ARA has scheduled a group trip to Las Vegas for employees and dependents April 13 through 15.

Travel will be by two chartered buses, carrying a total of 74 passengers. Reservations are at Stardust Motel.

Buses will leave from GD/Astro Bldg. 2 lobby at 5:15 p.m., Friday, returning at about 8 p.m., Sunday.

Reservations at $25 each, including transportation and hotel accommodations, will be accepted first-come, first-served between 3:30 and 5:30 p.m. at ARA Clubhouse. Additional information is available at ext. 1111.

Warren Man's Dad Runs For Governor

WARREN AFB — When the political race for governor of Wyoming unfurls this year one GD/Astro employee here will have more than just a casual interest—his father will be a candidate.

William M. Jack Jr., longtime Astro employee here, is the son of William M. "Scotty" Jack, announced candidate.

Schilling Group Cheers Milestone

SCHILLING AFB — Celebrating a milestone in activating Atlas launch complex No. 2 here, some 50 employees gathered for a party March 10.

About 50 couples gathered at the White House Inn, Abilene, for an evening of fun. C. W. Dale, GD/Astro complex supervisor, led the Astro group. Ten door prizes were presented.

Travel Abroad Requires Long Preparation

Increased international travel by General Dynamics/Astronautics employees has prompted a word of caution from F. J. Parker, chief of stores and traffic, regarding preparations.

Basically, these are a time-consuming proposition, requiring weeks—not days—to complete, and many of the steps involved must be completed by the individual personally.

"We advise beginning initial arrangements at least a month in advance," Parker said. "If the visit is to some out-of-the-way point, even longer may be required."

Travelers visiting points other than Mexico, Canada, and certain Caribbean areas require passports, and should allow at least two weeks to obtain these from Los Angeles. United States citizens must show proof of birthplace when filing a passport application.

In most areas outside Latin America and Western Europe, visas are required and must be obtained from the embassy or consulate of the country involved. Some countries have consular representation only in Washington, D.C., and in all cases, the passport must accompany the visa request.

Innoculations are advisable or mandatory, with requirements varying from country to country.

GD/Astro travel reservation center, ext. 4355, in the material building (92) has compiled considerable information on international travel, and can advise and assist prospective travelers to some degree.

The primary responsibility of the travel center, however, is in the field of transportation, while most other arrangements must be completed by the individual concerned.

Bridge Fans to Meet At ARA Clubhouse

On April 5, ARA Bridge Club will transfer its "base of operations" from the Barcelona Bridge Club to ARA Clubhouse.

The group meets for play each Thursday from 7:30 to 10:30 p.m. A special master point award will be presented at the April 5 meeting.

Some 40 fans presently take part regularly, and ARA Commissioner Art Saastad has issued a special invitation to other bridge enthusiasts—beginners or advanced players alike—to participate in club activities.

Information on the group is available from Saastad at ext. 3012, or from Bob Rustad, ext. 2349.

Samuelson Elected Skin Diver President

New officers of Astro Divers, ARA skin diving club, were elected recently.

Frank Samuelson will serve the club as president for the coming year, with Bill Carter, vice president; Charles Blakelock, secretary; and Jerry McMurry, treasurer. Cliff Kickbush is ARA commissioner.

Featured speaker at the election meeting was Bob Dill of Naval Electronics Laboratory, who discussed recent oceanographic studies conducted by the Navy and Scripps Institution of Oceanography.

Spring Fashion Show Tonight

The 1962 version of ARA's annual spring fashion show, "Crowns and Gowns," will be held at 8 p.m. today (March 28) in General Dynamics/Astronautics Bldg. 2 reception center.

Nineteen semi-finalists will vie for the crown of "Miss or Mrs. ARA," displaying the latest in fashions from leisure costumes to cocktail dresses, supplied by Worth's of El Cajon Blvd.

Escorting the ladies on GD/Astro's famous spiral staircase will be five Air Force ROTC cadets from San Diego University. Other cadets will serve as a color guard.

Radio personality Molly Morse will serve as commentator, introducing the fashions, and Air Force officials have been asked to perform crowning honors at the show's conclusion.

Door prizes — fashions shown during the event—will be presented and refreshments will be served. Tickets at $1 have been available at all employee services outlets, and none will be sold at the door.

Judges of the gala display will include charm school entrepreneur Edith Antelline; Eric Moore, representing the Junior Chamber of Commerce; charm school instructor and professional model Sherry Miller; Paula Kent of Copley Newspapers; and Jeff Edwards, television Channel 8.

GD/Astro Wives In Keg Tourney

LINCOLN AFB — Four five-member teams representing the Lincoln (AFB) Atlas Wives bowling leagues here recently took part in the Lincoln Ladies' City Bowling Tournament.

Only one team, composed of June Stouse, LaVonne Erie, Barbara Yoakum, Marilyn LaFrance and Boots Hawke, finished "in the money." Taking higher individual honors were Mmes. LaFrance and Erie in the all events and LaFrance and Hawke in singles.

Two Astro Atlas leagues are currently in action, both meeting on Friday morning at Plaza Bowl, Lincoln. An older league is made up of eight teams of four members each. A newer league, formed for newly-arrived wives, has six three-man teams.

The Missile Misses (Selma Hoffman, Rose Maynard, Maxine Moody, Pat Schwartz) lead League No. 1. Martha Nicholson holds scratch game (220) and handicap game (260) honors. LaVonne Erie holds high scratch series (538) and Pat Schwartz high handicap series (639).

League No. 2 is led by the Boomer Girls (A. Hatcher, G. Flick, E. Somers). E. Somers has top scratch game (221), while Peggy Good holds handicap game honors with a 250. Top handicap series roller is G. Flick with a 680.

Discount Offered On Padre Tickets,

Discount prices to a select number of San Diego Padre home baseball games will be available again this year to GD/Astro folk.

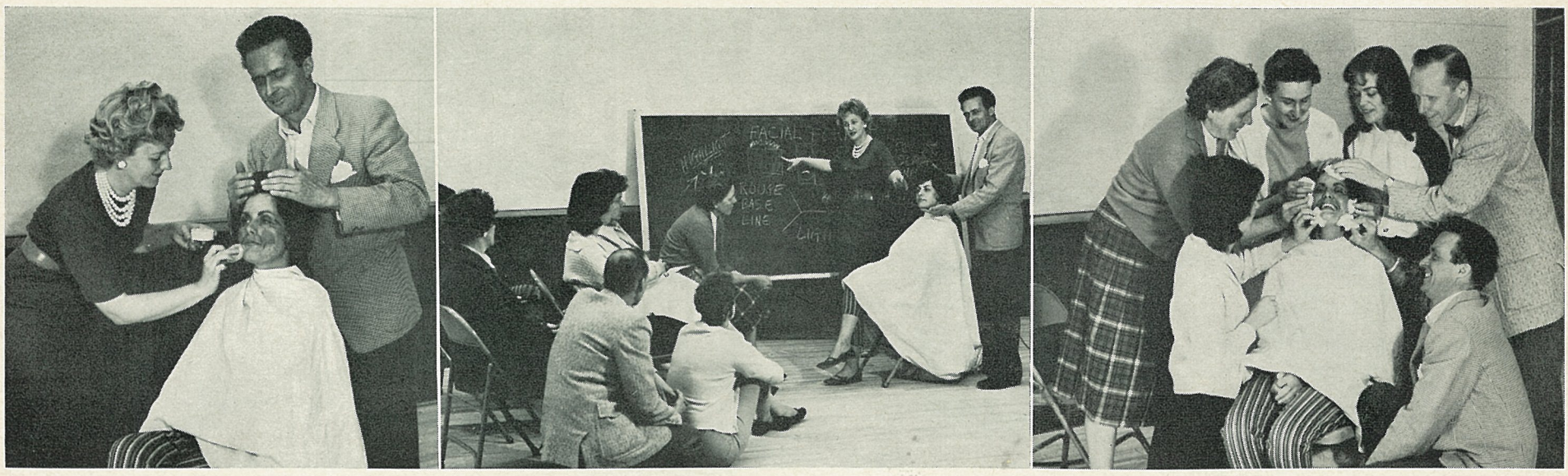
The first game for which exchange tickets will be available will be played Tuesday, April 24. Employees may pick them up beginning April 9 at employee services outlets.

Exchange tickets turned in at Westgate Park save employees 75 cents. For instance, regular $1.25 general admission tickets may be purchased for 50 cents, etc.

Plant Championship Pistol Match Set

GD/Astro pistol fans have been invited to compete in Plant Championship matches April 8 sponsored by ARA Pistol Club.

The all-.22, 800-point aggregate contest will begin at 9:15 a.m., San Diego Police Pistol Range, Home and Federal Aves.



WAR PAINT—Astro Players are attentive (center) as Pauline Middleton and Julius Rose prepare to demonstrate stage make-up, with Patsy Kick as volunteer. At left process gets under way; while at right, lesson completed, Trudy Leyrer, Mrs. R. Thornton, Rosalie Osborn, Rae Long and Dick Middleton add their help to removing make-up. Drama enthusiasts are learning fine points in series of workshops. Sessions are held every Wednesday in ARA Clubhouse.—Photos by Milt Ball.

DRAMATISTS BEGIN WORKSHOP SERIES, TO MEET WEEKLY

A new series of dramatic workshops inaugurated recently by Astro Players, ARA drama club, continues with a meeting tonight (March 28) at 7:30 p.m. in ARA Clubhouse.

The workshops are a practical approach to the theater for the novice and experienced performer alike. They will be held for two hours each Wednesday evening, except when pre-empted on the first Wednesday of each month for a general meeting of the drama club.

The series is planned by program director John Cone and Art Wright to provide the group with rounded experience, training, and criticism.

Meetings will cover such topics as dramatic and comedy acting, direction, monologues, staging, make-up, special effects, costumes, etc.

All members will be given an opportunity to participate.

Astro Players' first production in the current series, a three-act comedy "Wake Up, Darling," by Alex Gottlieb, will open in May.

Tryouts to fill six male and five female roles will be held in ARA Clubhouse starting at 7:30 p.m., March 29 and 30.

Additional information on Astro Players activities is available from Cone, ext. 3267, or Chuck Audet, ext. 3454.

Atlas Rally IV Route Decided

Additional details of Atlas Rally IV to be conducted April 29 by ARA Sports Car Club have been announced by Marion Carter, ARA commissioner.

Course layout for the fourth annual event of its kind has been completed. The route is designed to accommodate beginning competitors, yet still present a challenge to experienced rally drivers.

As in previous years, roads were selected for scenic beauty and rest stops totaling two hours are included in the rally timetable.

"Drivers don't need a sports car to enter," Carter said. "Last year we had everything from a 1929 Plymouth to a Volkswagen bus."

The day's event will conclude at Marty's near Oceanside, where complete hotel facilities are available to contestants.

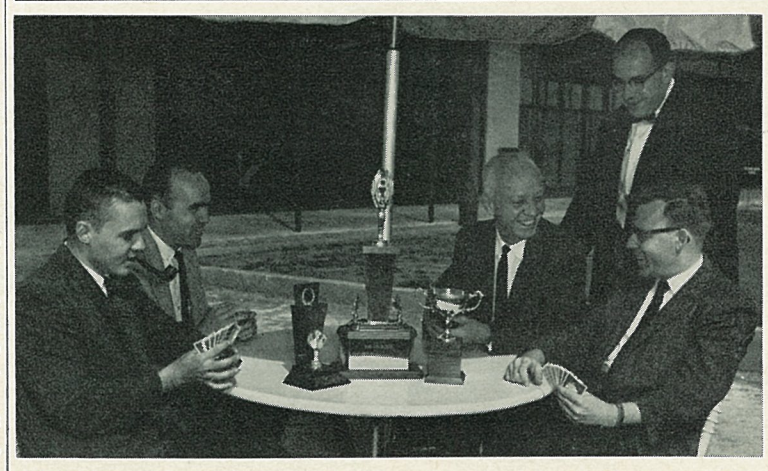
Additional information on Atlas Rally IV is available from Carter at ext. 2082, or from Rallymaster George Lahey, ext. 3206.

Theater Offering Ticket Discounts

Through arrangement with the Industrial Recreation Council, the State Theater has announced special reduced prices for GD/Astro and GD/Convair employees upon presentation of ID cards.

Employee prices for all showings are 99 cents for reserved seats; 75 cents for general admission; and 20 cents for children under 12 years of age.

Sports & Recreation



BRIDGE BUFFS—These five, composing "yellow" team, from GD/Astro have won San Diego Commercial-Industrial Team of Four Bridge Club championship three times in row. With only three of their many trophies are, from left, Frank Gadient, Dave Swingle, Paul Lewis, Al Silverman and Paul Orth.

'Yellow' Bridge Team a Winner

Since the San Diego Commercial-Industrial Team of Four Bridge Club was organized a year ago, one of seven teams entered from GD/Astro has dominated standings.

This is Astro's "Yellow" team of five (including an alternate) made up of Al Silverman, Dave Swingle, Frank Gadient, Paul Lewis and Paul Orth.

Sixteen teams are entered in the all-San Diego loop which meets for three hours a night on first and third Wednesdays at the San Diego Bridge Studio. Twenty-four boards are played each night, with seven games making up a session.

In the past three sessions, played over a year, the Astro "Yellow" team finished first each time. Trophies were presented for two sessions. Gift certificates are being prepared for the victors.

GD/Astro, Convair Compete in Tourney

GD/Astro and Convair badminton enthusiasts turned out en masse for the ARA-CRA sponsored tournament held March 17.

Top honors in women's singles went to Donna Day, Astro Dept. 170-1, over Ann (Mrs. Cliff, Dept. 223-2) Hewitt, while Noel Rozell, Astro Dept. 175-1, downed Dan Bain, Dept. 141-3, in men's singles.

Rozell and Ray Vredenburgh, Astro Dept. 141-4, topped Convair's Sam Sotelo, Dept. 198, and Gene Borlin, Astro Dept. 591-1, in men's doubles, with Bill McHorney and Leon Fiegenbutz, Astro Depts. 551-2 and 595-1 respectively, winning the doubles consolation round robin.

Channing and Donna Day yielded to Cliff and Ann Hewitt in mixed doubles, while McHorney downed Fiegenbutz in men's novice class.

30 Squares Expected For Dynamics Dance

A half-dozen callers will direct more than 30 squares when ARA Astro Nauts host square dance clubs from GD/Convair and GD/Pomona in an "All General Dynamics" jamboree March 31.

The evening event will open with a dinner in ARA Clubhouse at which chiefs of employee services and incoming and outgoing recreation association officers at each division will be honored guests.

Snow Skiers Enter Mammoth Races

Members of ARA Snow Ski Club will compete in the San Diego Ski Club open races at Mammoth April 8. Final arrangements will be made at a club meeting at 7:30 p.m., April 4 in ARA Clubhouse.

The races are open to all Ski Club members in the San Diego area. Trip reservations for members of the ARA group are being handled by Gene Rockafeller, ext. 2868, and a share-the-ride program is coordinated by Hal Moore, ext. 1487.

Reservation deadline is March 30.

Other recent club activities have included a group trip to Big Bear March 10-11, a social event March 22, and club races March 24.

Teen-Age April Fool Dance Scheduled

ARA Teen-Age Club will hold a dress-up April Fool's dance April 7 from 7:30 to 11 p.m. in ARA Clubhouse. One guest and one guest couple will be admitted with each membership card.

John Hess, ARA commissioner, appealed for added parental assistance in chaperoning. "Membership is increasing constantly," he said.

Twilight Golf Program Gets Under Way May 7

Astronautics Recreation Association's popular Twilight Golf program this year will be broken into two sections, one playing in early summer and the other later.

Competition this year will be at Stardust CC (Mission Valley) only, on Tuesdays and Thursdays.

One league (No. 1) opens May 7 and closes July 6. The second (No. 2) begins July 9 and ends Sept. 7. A round-robin play-off will pit winners of each for the team championship.

Teams are to consist of two players, plus one or more alternates, with two men playing each week. Starting times will be at 4:30 and 5 p.m. each of the two days.

Entry fee per team is $20 (not including green fees), payable in advance, with entries closing at noon May 1. Fees, with entry applications, will be accepted at employee services, Bldg. 8, from 11 a.m. until 1 p.m. and from 4:30 p.m. until 5:30 p.m. on weekdays.

Applications are to be in the form of AVOs listing: full names of all players; department numbers; telephone extensions; team name; captain and co-captain; a day preference (Tuesday or Thursday); and time preference (4:30 or 5 p.m.).

Leagues will be formed on a first-come, first-served basis, according to ARA Commissioner John Sentovic.

Hi-Fi Music Club To Meet Again

A successful organizational meeting of the ARA Hi-Fi/Music Club attended earlier this month by 86 prospective members, will be followed by a second meeting at 7:30 p.m., April 10 in ARA Clubhouse.

The up-coming session will feature a display of antique phonographs, exhibit of the club's basic hi-fi components, playing of a tape recording from the recent Project Mercury flight, and a movie "Music and Motion."

Also scheduled is election of a club board of directors.

At the previous meeting, library, studio, equipment selection, technical and publicity committees were organized, and equipment components now under construction for club use were displayed.

Additional information concerning the new club is available from Peg Lewis, ext. 4013, or Ben Lachance, ext. 2324.

Call For Keglers Sounded by Clubs

Last-minute call is out for all Management Club bowlers at GD/Astronautics, GD/Convair, GD/Electronics to sign up for the annual inter-division tourney.

Forest Erwin of Astro and Harry Lund of Convair, spearheading arrangements, urge all club keglers to turn out.

The second annual battle will take place April 15 at Clairemont Bowl.

All Astro members interested are asked to call Erwin, ext. 3509 Astro main plant.

Damp Field Delays Softball Tryouts

A wet playing field caused Commissioner Forest Erwin to delay tryouts for positions on the representative ARA softball team to compete in San Diego softball circles this season.

Weather permitting, practice sessions will be held from 7 to 9 p.m. each Tuesday and Thursday at ARA diamond in the Recreation Area the first two weeks in April.

Players wishing to try out for positions on the team are invited to attend these sessions, Erwin said. The annual San Diego preseason tournament for softballers starts in mid-April.

ARA Calendar

(GD/Astronautics Recreation Association has some 40 activities in operation for employees. For information, call ARA Headquarters, ext. 1111.)

★ ★ ★

ARCHAEOLOGY — Meeting 7:30 p.m. tomorrow (March 29) in ARA Clubhouse.

ASTRO DIVERS — Meeting 7:30 p.m., April 3, ARA Clubhouse.

ASTRO PLAYERS — Drama workshop, 7:30-9:30 p.m., tonight (March 28), ARA Clubhouse.

BRIDGE — Meetings, play, every Thursday, 7:30 p.m. Held tomorrow (March 29) at Barcelona Bridge Club, Fourth and Juniper; then moves to ARA Clubhouse.

FASHION SHOW — Tonight (March 28), 8 p.m., Bldg. 2, lobby. Tickets $1 at employee services outlets.

GARDEN CLUB — Meeting 7:30 p.m., April 4, Federal Bldg., Balboa Park.

HI-FI/MUSIC CLUB — Meeting 7:30 p.m., April 10, ARA Clubhouse.

LAS VEGAS TRIP—Bus travel plus hotel accommodations $25 per person. Trip slated April 13-15. Reservations at ARA Clubhouse, 3:30-5:30 p.m. daily.

PISTOL CLUB—Plant championship matches, 9:15 a.m., April 8, San Diego Police Pistol Range.

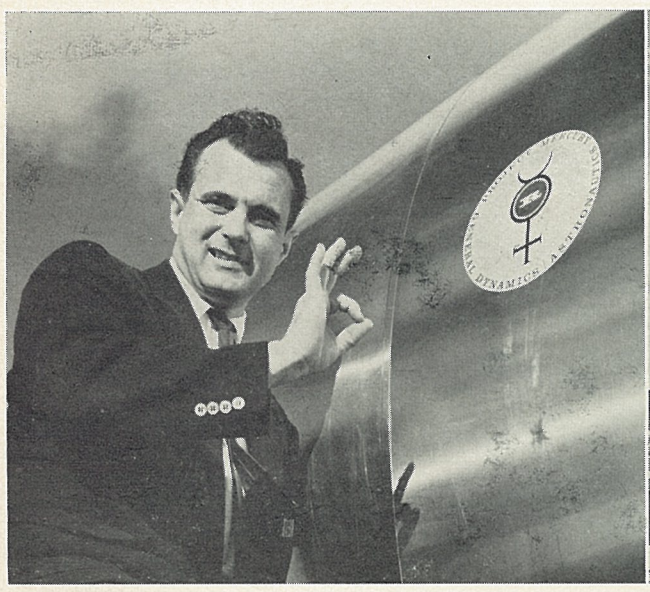
REDUCED PRICE TICKETS —"Westside Story," Capri Theater. Special showing 7 p.m., April 22. Tickets at $1.40, $1.75, available tomorrow (March 29) at employee services outlets.

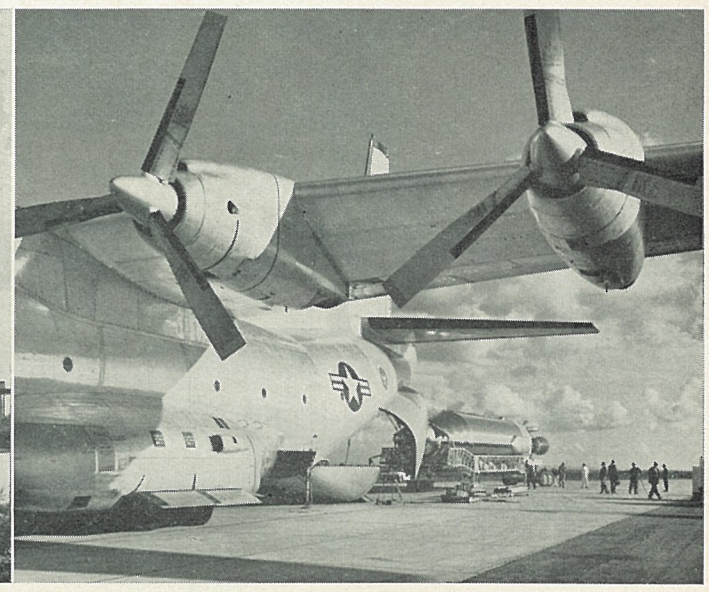
RIDING CLUB — Fun show in Recreation Area riding areas April 8. Meeting, ARA Clubhouse, 7:30 p.m., April 10.

SNOW SKI CLUB — Meeting 7:30 p.m., April 4, ARA Clubhouse.

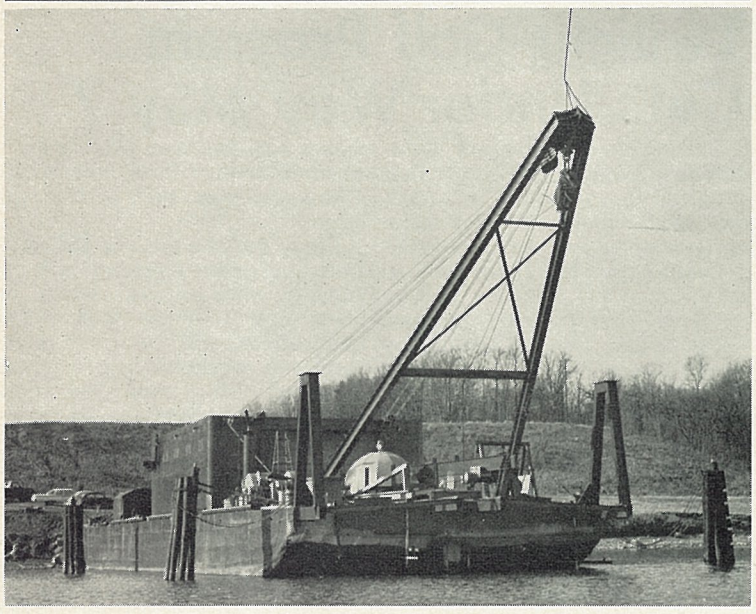
TEEN-AGERS — Dress-up April Fools' dance, 7:30-11 p.m., April 7 in ARA Clubhouse. "Royal-Aires" band.

TENNIS—Spring tournament, Morley Field, April 28-29, May 5-6. Information from Ben Cendali, Sycamore ext. 58.





OFF FOR CAPE—GD/Astronautics space launch vehicle engineer Dave Dixon, left, gives "okay" sign as Project Mercury Atlas missile No. 107-D left Astro plant at San Diego recently for Cape Canaveral. (Missile that placed Astronaut John Glenn in orbit was No. 109-D.) Dixon has been assigned to 107-D for "months," has followed it through assembly and acceptance, and rode with it in cargo plane on flight to Florida.



DARIUS AT DOCK—Floating anti-submarine warfare laboratory is shown on Seneca Lake, near Rochester, N.Y. It is center for GD/Electronics studies in this field.

Floating Test Lab at Rochester Seeking Break-Through in ASW

As Darius the Great opened the gateway between the Mediterranean and Red Sea, "Darius" the floating General Dynamics/Electronics laboratory, Rochester, N. Y., is seeking a new gateway in submarine detection.

Now docked at Seneca Lake, the 165-foot vessel will try to find new ways of detecting enemy submarines hundreds of miles away.

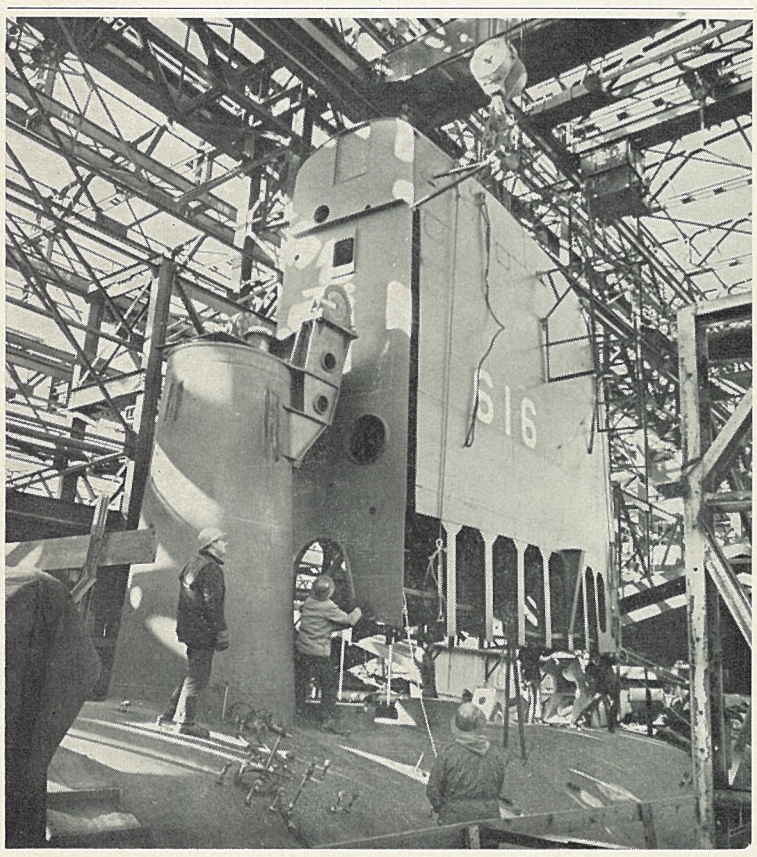
Harry B. Miller, manager of the advanced development electro-acoustics laboratory, named the vessel after the Persian king who, about 500 B.C., opened a tributary of the Nile, connecting the Red Sea with the Mediterranean.

SUTEC—the Senaca Lake Underwater Test and Evaluation Center—will play a key role in the nation's security system.

"We would like to be able to find a way to build a sort of 'wet' DEW line, an underwater system that warns of approaching submarines just as the DEW radar line to the north warns of approaching bombers or missiles," Miller said.

Test work at SUTEC is expected to go on around the clock when the barge moves out into the lake to test sonar devices in the 600-foot depths.

For this work it will anchor about a mile out in the lake. Miller explained that a big crane will lower transducers—sound sources—into the lake. Recording equipment will monitor sound waves and echos.



HOISTING SAIL—Six-ton sail (formerly known as conning tower) is guided into place on Polaris firing Lafayette at General Dynamics/ Electric Boat, Groton, Conn. Submarine, largest ever built, will be launched May 8.

Space Launch Engineers 'Live' With Missiles

Atlas missile 107-D, a Project Mercury "bird," is well known at the General Dynamics/Astronautics plant at San Diego, as well as at Cape Canaveral where it traveled recently.

But it is safe to say that Dave Dixon knows more about its history than any other single person.

Dixon, a space launch vehicle engineer in field test support, was selected to follow this particular missile almost from the start of manufacture, through assembly, pre-acceptance, acceptance and delivery to Florida. He will continue to keep in close touch for pre-erection checkouts, launch preparations and ultimate post-launch proceedings.

Assignment of a single individual to a particular bird is not an uncommon practice at GD/Astro, not only for launch vehicles designed for space probes, but for missiles going to static test or flight at research and development (test) bases. He works with many departments and sections and acquires a thorough knowledge of every phase of planning and scheduling, keeping exacting records and helping expedite in critical areas. He also is available to provide detailed information in advance to test conductors.

As a representative of the program director, in cases of space launch vehicles, he participates in acceptance, delivery and field operations.

Launch vehicle engineers such as Dixon report to either Walt Stoermer, directing support operations involving Cape Canaveral, Ed Mastaglio, handling captive test sites, or D. K. Squires, supervising GD/Astro Pacific Missile Range activities at Vandenberg AFB. They, in turn, report to T. L. Maloy, veteran GD/Astro chief test conductor, now assistant chief engineering-field test engineering.

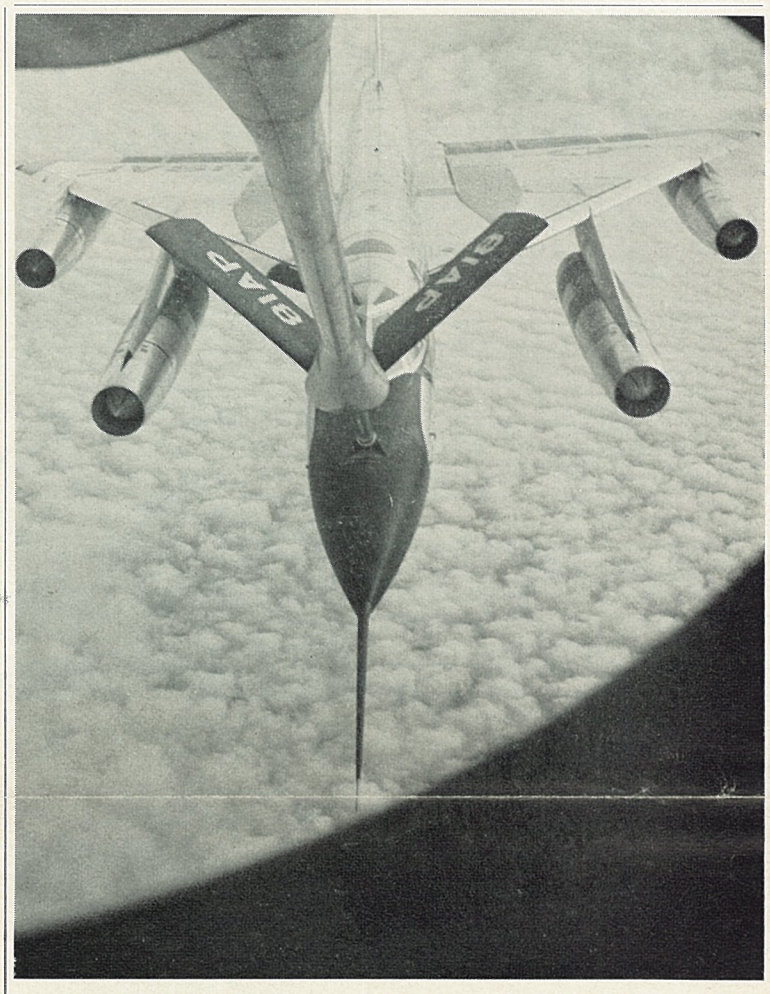
B-58 to Enter Competition

The B-58 Hustler will compete in 1962 Combat Competition—along with the B-52, B-47, KC-135 and KC-97 — an announcement from Headquarters, Strategic Air Command, revealed recently. Competition is planned for September.

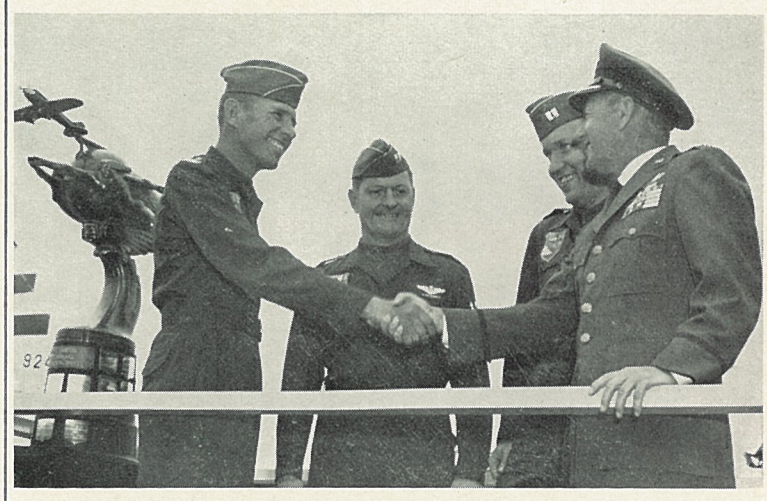
Making its debut in the competition in 1960, the Hustler chalked up the best pair of radar bomb scores and top individual high-level navigation run. Last year, the B-58 did not compete.

Awards will be made to best-of-crew in all types of aircraft flown. In addition, the best overall bomber and tanker crews will receive individual awards.

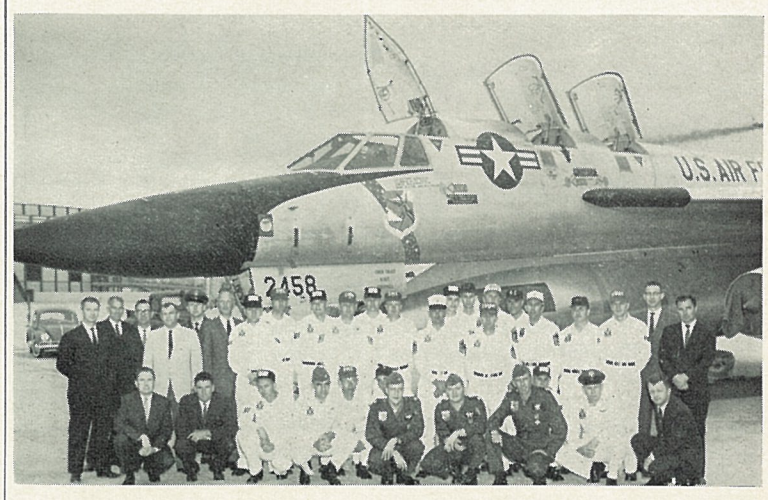
This year, in place of a central base of operations, bombers will fly from home bases to a point where the competition route becomes common to all competing aircraft.



CONNECTION—GD/Convair Photographer Bill Carter, flying aboard AF tanker, took this photo of refueling GD/Fort Worth-built B-58 on day B-58 flew across U. S. and back in 4 hours, 42 minutes. Time included 25 minutes for refueling over Atlantic. Plane averaged 1,212 mph west to east and 1,091 east to west.



REWARD—SAC crew of, from left, Capts. Robert G. Sowers, pilot, Robert MacDonald, navigator, and John T. Walton, DSO, get congratulations (and DFCs) from Gen. Thomas S. Power, SAC chief, following record round-trip run in Hustler. At left is Bendix Trophy.



FULL CREW—Air Force and General Dynamics personnel involved in B-58's record transcontinental flight are shown at Los Angeles prior to takeoff.

SAFETY LEADERS—GD/Astro's fifth annual safety awards night was held March 20 at Bahia in San Diego. Seated at far left is P. T. Gardner, base manager at Sycamore, who collected trophy for three years of "no lost-time accidents" and also (representing Fenton Miller, chief engineer-test) accepted trophy for Edwards RS for safest off-site record. Others, from left: J. P. Hopman, factory manager, assembly and fabrication; Supt. L. L. Tuttle, whose Dept. 758 won safety-housekeeping; E. D. Bryant, vice president-operations; Supt. Jack Kline, whose Dept. 731 collected housekeeping award; M. V. Wisdom, director of industrial relations; P. M. Prophett, base activation director who accepted Atlas trophy for Altus AFB; J. W. Garrison, chief safety engineer. Standing are all Dept. 758 supervisors, except for W. T. Herchold, Dept. 731 general foreman, directly behind Kline. Dept. 758 totaled largest score of any winner in six years of competition.

GENERAL DYNAMICS

NEWS

GD

ASTRONAUTICS EDITION

Vol. 15, No. 8 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, April 11, 1962

Safest Astro Depts. Honored With Awards

General Dynamics/Astronautics last month spotlighted the safest elements among its main plant and off-site base forces at its fifth annual safety awards presentation dinner.

The March 20 affair at the Bahia Hotel brought together representatives of departments or bases winning top safety honors during 1961. E. D. Bryant, vice president—operations, passed out the trophies.

Dept. 758 (major assembly) won top honors among San Diego-based operations, carrying home the combined safety-good housekeeping trophy. Supt. L. L. Tuttle accepted, while supervisors from that department watched.

Dept. 758 amassed the greatest number of points ever garnered by a winning department in the contest, now in its sixth year. The 200 Dept. 758 employees worked over 10 months without a lost-time accident and had only one accident of this kind for the entire year. It marked the first time this department had finished in the top spot since 1957, the first year the contest was held.

Dept. 731 (machine shop) won the good housekeeping contest for the year. Supt. Jack Kline and General Foreman W. T. Herchold accepted.

P. M. Prophett, director of base activation, accepted for Altus AFB the annual Atlas award for the off-site base winning the largest number of monthly contests.

Phil Gardner, representing Fenton Miller, chief engineer—test, accepted for Edwards RS a trophy honoring the base with the lowest accident frequency rating of all off-site operations. For his own Sycamore Canyon group he took home a trophy for three years worked without a lost-time accident.

Dignitaries taking part included M. V. Wisdom, director of industrial relations; J. P. Hopman, factory manager for assembly and fabrication; and J. W. Garrison, chief safety engineer.

The Dept. 758 victory during

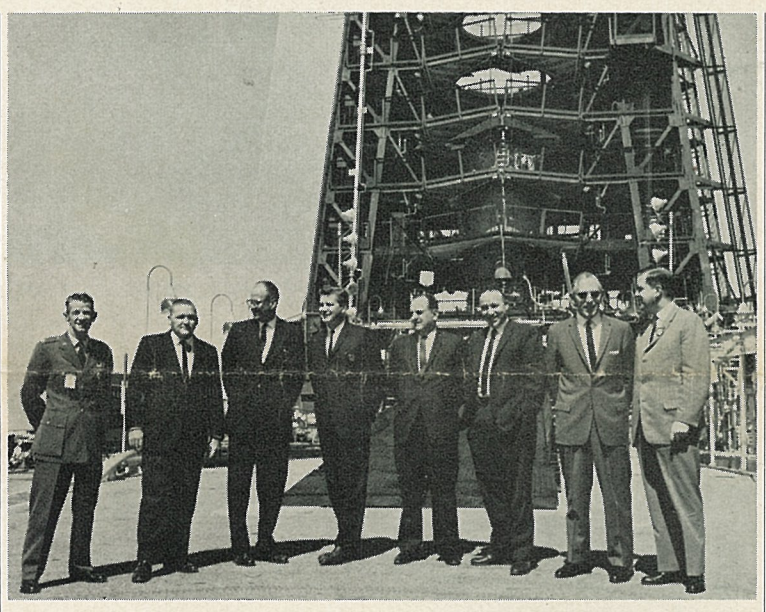
(Continued on Page 2)

Salvage Schedule For Month Listed

Salvage yard schedule for the next four weeks at GD/Convair and GD/Astro sites is:

GD/Convair—April 14, 28.

GD/Astro—April 21, May 5.



ON LOCATION—Key figures in Centaur development recently called at Edwards RS for visit. In front of Test Stand 1-1 are, from left, Maj. Joe Heatherly, Air Force, W. R. Jackson, V. L. Allwardt and Dan Sarokon of Astro, C. W. Huth, chief of technical services office, MSFC, NASA, Ronald Rovenger, NASA plant representative at Astro, Dr. Hans Hueter, director of light and medium launch vehicles, MSFC, NASA, and Grant L. Hansen, vice president and program director—Centaur, Astro.

Three Score Dynamics Boys, Girls Participate in Science Fair

Fifty-eight General Dynamics youngsters participated in the Eighth Annual Greater San Diego Science Fair, held last week in Balboa Park's Federal Building.

The Fair included 323 choice exhibits selected from hundreds prepared by junior and senior high school students in city and county schools.

Students worked independently on projects ranging from nuclear physics to digital computers, displaying results of their research in exhibits and demonstrations. Here, they were judged by top scientists from local industries and educational institutions.

GD/Astro contestants winning special recognition were Robert A. Breeze and James McCabe (firsts); Franz M. Jaggar, Donald R. Moeller and Joe Tanalski (seconds); and Michael Creutz, Diane Sylvester, Susan Hurlich, Catherine Jaegly, and Charles Getzoff (thirds).

Singled out for honors were GD/Convair youngsters Lauren Jones (first); Richard A. Brown (second); and John J. Valentino, Carolyn Shepard, Royce B. Riggan Jr., and Sandra Ann Qualiato (thirds).

From General Atomic were Carl Creutz and Gregory C. Mattson (firsts) and Sharon Wilkins and Gregory Simmons (thirds). Other Dynamics winners were Gwen Breslauer (first), Glenn Scott (second), and John R. Murphy (third).

Winners were announced at ceremonies last Wednesday (April 4).

(Continued on Page 2)

Project Organization For Centaur Outlined

"Essentially complete!"

Grant L. Hansen made the report this week on the status of activating a new Centaur project line organization within General Dynamics/Astronautics.

Hansen, vice president and program director—Centaur, started work in "projectizing" the function just over two months ago. From a nucleus of key personnel he has assembled a work force of over 750 which may grow even larger.

With few exceptions, the force growth resulted from transfers within Astronautics. Departments and functions previously working exclusively on Centaur moved into the new organization intact. Smaller groups or individuals involved were also transferred. In some cases, where Atlas and Centaur work is performed jointly, employees work on Centaur while remaining within their own departments.

Many departments are cooperating, both in organizational stages of the project and in the day-to-day operations involved, by assigning personnel to assist as needed.

"We have been fortunate in drawing experienced and highly-skilled personnel from throughout Astronautics," Hansen said. "Whenever possible, we will continue to fill our needs in this manner."

Within the ranks of Centaur organization and departments within the 900 numbering series assigned to it are hundreds of men and women who are veterans of design, development, production and testing of the Atlas weapons system.

For instance, veteran test conductors like W. R. Jackson and Roger Lynch and the Atlas' first chief test conductor, K. W. Jeremiah, hold key Centaur posts. Throughout the organization are names recognized as synonymous with the Atlas as a weapon system and launch vehicle for space programs.

Being "projectized" does not mean Centaur is to become a new division within General Dynamics Corporation. All GD/Astro Division staff members continue to exercise policy responsibility for areas within the program.

The new organization will, however, allow GD/Astro to respond quickly to requirements set forth by National Aeronautics and Space Administration, the sponsoring agency for Centaur.

Ronald Rovenger, NASA plant representative at GD/Astro, and his staff of about 16 persons have lent their efforts to the Centaur function activation.

It might be pointed out, Hansen said, that the new organization holds responsibility both for the Centaur stage itself and the systems integration of the Centaur stage with its booster, upper stages, GSE and facilities.

Office and engineering personnel involved have been moved into the second floor of Bldg. 26. Approximately 100 employees work in factory, laboratory and electronic manufacturing areas elsewhere at Astro.

Reporting directly to Hansen are two deputy program directors, a chief engineer and five managers who head various functions.

G. D. Davis is deputy program

(Continued on Page 2)

CENTAUR LEADERS—Holding breakaway model of Atlas/Centaur are program leaders. Pointing is G. L. Hansen, vice president and program director—Centaur. Holding Atlas vehicle is G. D. Davis, deputy program director for technical control. K. W. Jeremiah, deputy program director program control, holds spacecraft. Others, from left, are W. R. Jackson, manager of test operations, W. F. Radcliffe, chief engineer, W. R. Monroe, manager of reliability control, E. R. Gaynor, standing in for E. J. Bryant, manager of material, and L. G. Granstedt, manager of manufacturing operations. R. C. Lynch, manager of launch operations at AMR, was not present for photo.

Last Tickets Sold For 'Ladies Night'

Capacity crowds for tonight's (April 11) Astronautics Management Club "Ladies Night" meeting featuring Ronald Reagan were assured early last week when the last of 1,132 available tickets were sold.

Sponsored by product support, the meeting is being held at the Hotel del Coronado.

Log Book Entries

Promotions

MAIN PLANT

Promotions to or within supervision effective March 26.

Dept. 105-0, Advanced Product Planning: To chief of product planning, G. F. Miller Jr.

Dept. 126-0, Communication: To art production asst. supervisor, M. J. Axelrod.

Dept. 140-0, Reliability Control: To quality control administrator, P. M. Benner.

Dept. 146-8, Reliability Control Engineering: To asst. reliability group engineer, M. L. Goldberg.

Dept. 152-0, Program Planning and Control: To master schedules supervisor, T. V. Fago, R. H. Meleney.

Dept. 155-0, Estimating: To chief of estimating, W. DuMolin.

Dept. 210-0, Operations Estimating and Forecasting: To factory methods asst. supervisor, R. A. Ames, E. J. Fortin Jr.

Dept. 223-2, Production Control: To production control foreman, R. E. Hart, C. B. Hill.

Dept. 321-8, Support Systems Engineering: To personnel subsystems supervisor, D. B. Carson.

Dept. 322-7, Support Publications: To support pubications asst. supervisor, H. E. Burger, P. M. Elrod Jr., J. D. Rowland.

Dept. 324-8, Field and Service Engineering: To service engineering supervisor, H. K. Shirley.

Dept. 331-1, Support Supply: To GFE supervisor, H. C. McShane.

Dept. 333, Off-Site Logistics: To support logistics asst. supervisor, T. Meinke, L. M. Whitney.

Dept. 335, Service Parts: To support logistics supervisor, W. H. Shughart. To support logistics asst. supervisor, T. Wilson.

Dept. 343-2, Support Manufacturing Control: To GFE asst. supervisor, C. W. Andreasen.

Dept. 350-6, Support Field Operations: To master schedules supervisor, R. E. Monce.

Dept. 351, Field Modification: To asst. supervisor support publications, B. D. Barnard, H. E. Hamerdinger.

Dept. 355-0, Field Modification: To chief of product support-base, L. L. Felts.

Dept. 523-4, Engineering Documentation: To standards group engineer, H. F. King.

Dept. 536, Mechanical Design: To design group engineer, O. Hamberg, W. P. Shine.

Dept. 537-5, Mechanical Design: To design group engineer, L. M. Nelson.

Dept. 541, Mechanical Design: To design group engineer, J. S. Comber, W. E. O'Brien.

Dept. 551-3, Electronics Design: To electronics group engineer, H. L. Copeland.

Dept. 581-5, Advanced Systems: To asst. project engineer, D. J. Jones Jr.

Dept. 595-1, Development: To research group engineer, H. W. Byington.

Dept. 597, Development: To asst. weights group engineer, M. Franke, H. G. Mileur. To structures group engineer, A. H. Hausrath, H. A. Hunter. To dynamics group engineer, D. R. Lukens.

Dept. 800-0, Material: To asst. to director of material, H. K. Capper.

Dept. 950-1, Centaur Project Management: To deputy program director-Centaur, G. D. Davis.

Dept. 951, Centaur Technical Control: To asst. project engineer, J. H. Puhr.

Dept. 953-1, Centaur Program Control: To master schedules asst. supervisor, N. A. Nizze.

Dept. 956-0, Centaur Program Control: To estimating asst. supervisor, E. B. Smith.

Dept. 959-0, Centaur Reliability Control: To inspection supervisor, G. D. Koulaxizes.

AFMTC

Dept. 571, GD/Astronautics Operations: To design group engineer, D. M. Williams.

ALTUS AFB

Dept. 617, GD/Astronautics Operations: To asst. foreman, J. S. Boyles. To production control asst. foreman-base, J. S. Duran.

DYESS AFB

Dept. 618, GD/Astronautics Operations: To launch complex supervisor, D. M. O'Donnell Jr.

LINCOLN AFB

Dept. 616, GD/Astronautics Operations: To launch complex supervisor, W. J. Hill Sr. To plant engineering asst. supervisor-base, E. G. Hammick. To chief of launch complex group, B. T. Boone.

PLATTSBURGH AFB

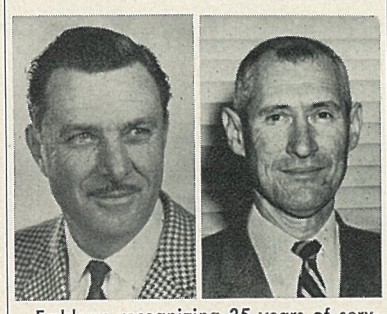
Dept. 620, GD/Astronautics Operations: To asst. foreman, J. E. Bowker, W. E. Correll, C. E. Duffie, J. L. Eubanks, S. D. Jarman, T. I. Johnson, W. V. Ohland, E. W. Redding Jr. To launch complex asst. supervisor, W. C. Ryan, B. F. Hawkins, M. G. Goates, R. M. Gallego, J. T. Freitas, A. D. Dodds Jr., R. W. Brooks, B. Clabaugh. To production control asst. foreman, J. H. Earl. To office services asst. supervisor, J. F. Eulette. To cost control supervisor, A. J. McGraw. To MAB asst. supervisor, V. L. Dupont. To launch complex supervisor, H. E. Sullivan.

VANDENBERG AFB

Dept. 576, GD/Astronautics Operations: To head nurse, M. J. Cirksena. To production control asst. foreman, D. G. Gimber. To asst. test conductor, R. M. Markoff. To chief of projects, V. D. Wynn.

WALKER AFB

Dept. 619, GD/Astronautics Operations: To asst. foreman, R. L. Brown Jr., C. F. Clark, F. C. Lane, R. W. Fryer, W. E. Eamlet, D. W. Williams. To launch complex asst. supervisor, M. W. Scott, S. P. Holden. To production control asst. foreman-base, V. O. Whitfield.



Emblems recognizing 25 years of service were awarded recently at GD/Astronautics to Frank Kemper, Dept. 780-0, left, and to J. C. Ruzich, Dept. 331-2.

Service Emblems

MAIN PLANT

Service emblems due during the period April 1 through April 15.

Twenty-five-year: Dept. 334-3, R. A. Jacobs.

Twenty-year: Dept. 193-0, J. R. Tucker; Dept. 403-3, I. A. Sturdivant; Dept. 970-0, Patricia C. Pollock.

Fifteen-year: Dept. 154-1, W. J. Dawsey; Dept. 337-3, J. S. Blaha; Dept. 579-5, F. O. Young; Dept. 758-0, Robert Welk; Dept. 832-1, J. R. Tierney Jr.

Ten-year: Dept. 130-8, J. W. Jarvis; Dept. 151-1, John Stetina Jr.; Dept. 250, J. D. Mavis, C. E. Scholl; Dept. 331, O. L. Lopez, Willa R. Porter; Dept. 333-1, E. D. Shattuck; Dept. 337-2, C. E. Shinkle; Dept. 351-1, C. F. Coleman; Dept. 401-4, Margaret N. Poteet; Dept. 402-3, B. J. Alarid Jr.; Dept. 410-0, Michael DeBiaso.

Dept. 522-2, C. L. Johnson; Dept. 541-3, J. W. Beatty; Dept. 571-4 L. M. Evans; Dept. 733-0, W. C. Hicks; Dept. 756-0, O. J. Riddle; Dept. 758-0, Nick Montallegro; Dept. 759, Tetsuzo Hirasaki, Marguerite L. Kellam; Dept. 773-0, H. D. Pasley; Dept. 825-0, Efrain Conrique.

ALTUS AFB

Twenty-year: Dept. 617, J. W. Moss, N. L. White.

Ten-year: Dept. 617-7, E. L. Laseman.

DYESS AFB

Ten-year: Dept. 618, H. E. Mowery, F. E. Rogers, R. J. Waters.

PLATTSBURGH AFB

Ten-year: Dept. 620-9, R. J. Ennis.

SYCAMORE

Ten-year: Dept. 573-4, E. V. D. Petzen.

VANDENBERG AFB

Ten-year: Dept. 576-3, R. C. Haley.

WARREN AFB

Fifteen-year: Dept. 611-3, L. A. Frankson.

Lost & Found

MAIN PLANT

REWARD—$5 offered for return of seaplane model P5M removed from my desk in Convair's systems analysis department, third floor, Bldg. 5, Plant 1, on March 28. Personal value. R. W. Vannatta Jr., ext. 1512, Convair Plant 1.

Personals

SCHILLING AFB

Our sincere thanks to our many friends for their kindnesses following the recent loss of our son, David. Your expressions of sympathy are deeply appreciated.

Mr. and Mrs. W. L. Curtis, Joan and Paul. Dept. 615-4.

Births

LINCOLN AFB

THOMAS—Son, Warren Lee Jr., 8 lbs., 6 oz., born March 24 to Mr. and Mrs. W. L. Thomas Sr., Dept. 614-7.

SYCAMORE

MARKO—Son, Martin Francis, 7 lbs., 8 oz., born March 3 to Mr. and Mrs. H. Marko, Dept. 573-3.

Deaths

MAIN PLANT

COMSTOCK—Homer G., Dept. 250-2. Died March 23. Survived by wife, Dorothy.

LOGAN—Richard V., Dept. 851-1. Died April 3. Survived by wife, Nathalie.

PARRISH—Harry H., Dept. 842. Died March 25. Survived by wife, Josephine.

THOMPSON—Clair B., Dept. 561-2. Died March 25. Survived by wife, Charlaine.

DYESS PROPOSES ARCHERY CLUB

DYESS AFB — An Archery Club is being considered. Those interested may contact "Tex" Shaheen, ext. 8522, during the day or at OR-2-8543 evenings for additional information.

General Dynamics NEWS

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GD/Electronics (San Diego) news contacts: Helen Wood, CY-8-8331, ext. 15, 1895 Hancock St.; Betty Freeby, CY-8-4641, ext. 1377, Plant 1, Bldg. 51.

Fort Worth Editorial Offices, Col. 72, Admin. Bldg., GD/Fort Worth, Mail Zone 0-50, P.O. Box 748, Fort Worth 1, Texas. Telephone PErshing 8-7311, ext. 2961. Staff: Dave Lewis, editor; Mary Beck.

Pomona Editorial Offices, Room 106-D, Bldg. 1, GD/Pomona, Mail Zone 3-3, P.O. Box 1011, Pomona, Calif. Telephone NAtional 9-5111, ext. 6226-5279. Staff: James Combs Jr., editor; Carol Colbert. Daingerfield news office, P.O. Box 947, Daingerfield, Texas. Telephone Lone Star, Texas, 2211, ext. 424.

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Safest Astro Depts. Honored With Awards

(Continued from Page 1)

1961 marked the first occasion in which a group has managed to take the top spot above fabrication functions in annual standings.

Dept. 732 (sheet metal) won both the top award and the housekeeping award in 1960 and won the housekeeping award in 1959, with Dept. 731 taking the top spot.

Electronic manufacturing was top winner in 1958 and also tied with stores and traffic for the housekeeping laurels that year.

Stores and traffic won the initial contest during 1957 with Dept. 758 copping housekeeping honors.

★ ★ ★

DYESS AFB—Late last month the GD/Astro operation involved in activating Atlas launch and service facilities here passed an important milestone—one year without a lost-time accident.

For A. W. Billitti, safety supervisor, it was a key time. It marked the third occasion in the past six years when off-site Astronautics installations where he worked as a safety engineer had logged one full year of work without a lost-time accident.

Previously, he had recorded the achievement at Edwards Rocket Site and Fairchild AFB, Wash.

Since the Atlas program got under way, eight bases have worked a full year without a lost-time accident. In addition to the three bases named here, Air Force Missile Test Center (Cape Canaveral), Sycamore Canyon, Vandenberg AFB, Offutt AFB and Walker AFB have recorded this distinction.

Budros Named To Astro Post

J. L. "Jim" Budros, a 20-year industrial relations veteran, has been appointed manager of employee and labor relations at General Dynamics/Astronautics by M. V. Wisdom, director of industrial relations.

J. L. Budros

Budros will be responsible for labor relations, medical, safety and off-site industrial relations.

R. W. Brown, formerly manager of labor relations and off-site industrial relations, has been promoted to director of industrial relations at General Dynamics/Electronics, Rochester.

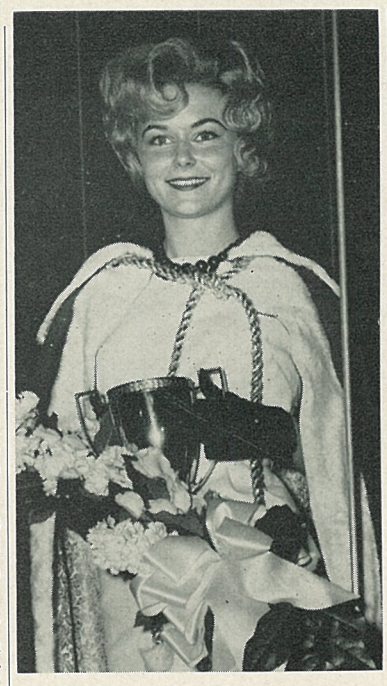
A graduate of San Jose State College who did graduate work at the Graduate School of Business, Stanford University, Budros joined the company in 1942 at San Diego as a safety engineer. He held other industrial relations posts before transferring to Fort Worth as chief safety engineer in 1948. Subsequently, he held successive positions as head of educational services, wage and salary and labor relations.

In 1953 Budros became personnel manager over all GD/Fort Worth industrial relations and in 1960 was moved to Convair's General Office as assistant to the vice president—administration. Since 1961 he has been corporate director of personnel administration.

Fairchild, Forbes Support Closing

This week GD/Astro is closing out its support organizations at both Fairchild AFB, Wash. and Forbes AFB, Kan.

In future employees visiting these installations will coordinate their visits through permanent contractor technical service personnel (field engineering, Dept. 324) assigned to each installation.



FAIREST—Ingrid Leyrer (Dept. 581-0) was named "ARA Queen" last month in finals of Astro-wide contest. From original field of 113 candidates, 19 were selected to model at fashion show.

Ingrid Leyrer Named Queen

Blonde and vivacious Ingrid Leyrer has been named "ARA Queen" at General Dynamics/Astronautics for the coming year.

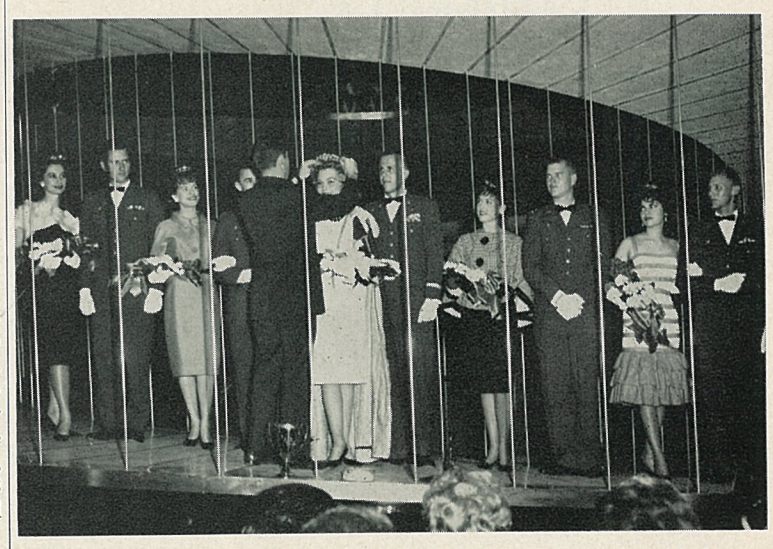
Her court, "Princesses" all, include Shirley Kuhn, Marilyn Clark, Frances Abolins and Charlotte Pacheco.

These five were selected from a field of 18 beauties who were, in turn, chosen from an original field of 113 Astro beauties.

Final selection came at a March 28 fashion show at the Astro reception center (Bldg. 2) with an overflow crowd of over 600. A panel of outside judges made the final selection.

As "ARA Queen," Ingrid (Dept. 581-0) will reign over special events, group activities and other affairs sponsored by ARA at Astro. She will hold her "post" until a successor is selected next spring.

While ARA-sponsored fashion shows are routine, this is the first occasion a queen has been named for all ARA.



QUEEN'S COURT—Phil Meyer, sponsor, crowns Ingrid Leyrer "ARA Queen" following judging at fashion show. With her are "Princesses" selected by outside judges. Girls from left are Shirley Kuhn, Marilyn Clark, Frances Abolins and Charlotte Pacheco. Escorts are State College Air Force ROTC members.—Photos by Jim Gavett.

Three Score Dynamics Boys, Girls Participate in Science Fair

(Continued from Page 1)

GD/Astro President James R. Dempsey served as chairman of the Fair board.

In addition, 29 scientists and engineers from GD/Astro; 17 from General Atomic; and three from GD/Convair and GD/Electronics served as judges, staff members, and counselors.

GD/Astro youngsters competing were Beverly Ater (Mr. and Mrs. J. T. Ater); Robert A. Breeze (Mr. and Mrs. J. A. Breeze); Gregory Cheung (Mr. and Mrs. L. T. Cheung); John Davis (Mr. and Mrs. B. B. Davis); Bill Duerksen (Mr. and Mrs. William Duerksen); Debbie Eldridge (Mr. and Mrs. H. P. Eldridge); and Charles Getzoff (Mr. and Mrs. Edward M. Getzoff).

Also, Jeffrey P. Greensite (Mr. and Mrs. Arthur Greensite); Kenneth G. Hamilton (Mr. and Mrs. E. A. Hamilton); Susan Hurlich (Mr. and Mrs. Abraham Hurlich); Bob and Catherine Jaegly (Mr. and Mrs. R. L. Jaegly); Franz M. Jaggar (Mrs. Anne E. Jagger); William M. Jessup (W. M. Jessup); and Denny H. Kugler (Mr. and Mrs. Robert D. Christensen).

Also, James McCabe (Mr. and Mrs. C. F. McCabe); Donald R. Moeller (Mr. and Mrs. L. F. Moeller); Geza Molnar (Mr. and Mrs. Gustav Molnar); Larry W. Nelson (Mr. and Mrs. J. A. Nelson); Ellen Pallulat (Mr. and Mrs. Henry Pallulat); Candace Perry (Mr. and Mrs. A. C. Perry); Glenna Rich (Mrs. Joyce Green); Larry Roberts (Mr. and Mrs. J. A. Roberts); and James Seid (Mr. and Mrs. James Seid).

Also, James D. Stingle (Mr. and Mrs. J. M. Stingle); Diane Sylvester (Mr. and Mrs. D. C. Sylvester); Joe Tanalski (Mr. and Mrs. T. T. Tanalski); and Thomas J. Utschig (Mr. and Mrs. Robert H. Utschig).

GD/Astro's Centaur Project Organization Described as 'Essentially Complete'

(Continued from Page 1)

director for technical control. Two chief project engineers, M. R. Barlow for vehicle and R. A. Raffesberger for GSE and facilities, and three chiefs, S. P. Hartzberg for NASA missions integration, W. Hicks for test integration, and R. S. Wentink for Advent missions integration, round out his group. They are part of Dept. 951.

K. W. Jeremiah is deputy program director for program control, Dept. 952. Reporting to him are: R. T. Lyles, manager of schedule planning and control; J. C. Cannady, manager of financial control; T. C. Courington, manager of contracts; and L. Moore, chief of administrative support.

Reliability control, Dept. 958, is headed by Manager W. R. Monroe with W. B. Otto, chief of reliability control engineering and J. E. Trader as chief of structures.

Chief engineer is W. F. Radcliffe who heads Dept. 960. Assistant chief engineers are: L. E. Lightbown, mechanical systems; G. A. Carlson, electrical and electronic systems; and W. B. Mitchell, design analysis.

E. J. Bryant is manager of material, Dept. 968. Chief of procurement planning is F. H. Branscom, with E. R. Gaynor chief of procurement.

Manufacturing operations, Dept. 970, are under L. G. Granstedt, manager. L. W. Kerner is chief of production control; G. B. Branch, chief of production engineering; and H. H. Miller, chief of final assembly.

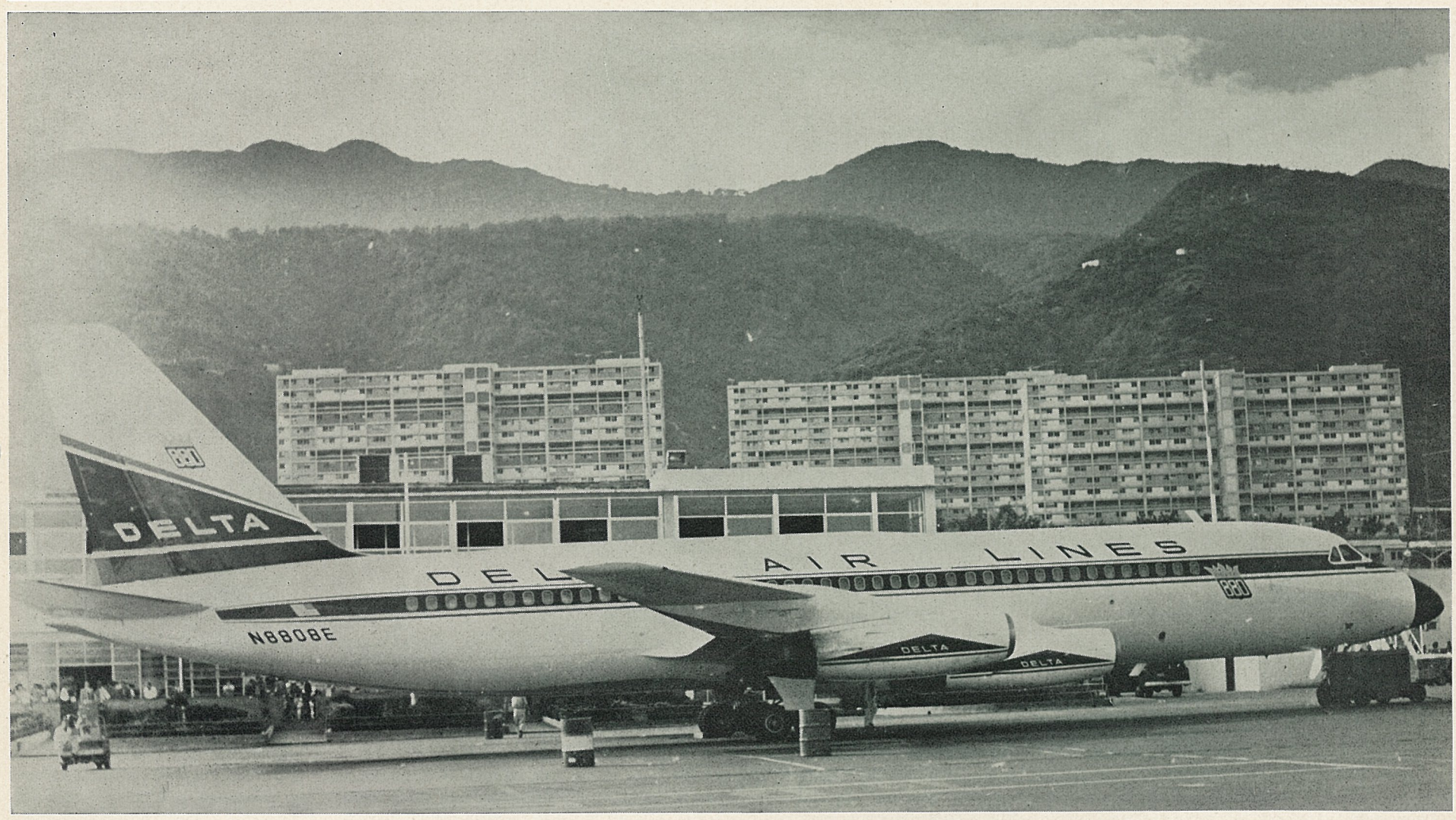
W. R. Jackson is manager of test operations, Dept. 974.

Manager of launch operations at Cape Canaveral is Roger C. Lynch.

Practice Softball Sessions Progress

DYESS AFB — Practice sessions, at 2 p.m. Sundays, are being held by GD/Astro employees here interested in softball.

Sessions are at the South 7th St. (west end) Park. Al Striplin, ext. 328 or 147, will supply further information.



FAR PORT—Delta Air Lines' Convair 880 is shown at Maiquetia Airport at Caracas, Venezuela. Delta 880 flights now connect San Francisco, Jamaica, Venezuela. Two round trips weekly will soon be operated between Los Angeles and Caracas. Jet 880 flights, Los Angeles to Puerto Rico, start May 1.

Northeast Airlines' Six Jet 880s Updated After Year of Service

Convair 880s flying over Northeast Airlines' eastern routes have just received their first major overhaul and inch-by-inch inspection in a three-month updating program.

Each of the six 880 jetliners was brought into Logan International Airport at the airline's Boston headquarters to go through a minute examination after 3,000 hours in the air. First of the Convair jets went into service with Northeast in December of 1960. All of the Convair planes fly the scheduled runs between Southern Florida and Montreal.

Now, all six in the 880 fleet have been disassembled, examined, cleaned, painted, and thoroughly inspected, then flight tested, before going back into harness. Even though the Convair jetliners appeared "almost brand new" after nearly a year in use, said Northeast officials, the job was done to keep them in perfect mechanical condition during the heavy tourist season to Florida.

The 880 overhaul project included everything from complicated X-ray and ultrasonic inspection of parts to thorough cleaning and germ-proofing of passenger cabins.

Supporting 880 operations with Northeast is Walt Belliston, General Dynamics/Convair transport field service representative, based at Boston.

GD/Astro's Meister To Speak in Utah

David Meister of General Dynamics/Astronautics will be among speakers at the three-day IAS National Aerospace Systems Reliability Symposium in Salt Lake City, Utah, April 16-18.

Meister, of Astro's human reliability requirements group, will speak on "The Prediction and Measurement of Human Reliability" at the Tuesday session on personnel subsystem reliability.

POLISHED—Anthony Contrada and Angelo A. Cornetto of Northeast Airlines buff 880 skin to mirror-like finish as last step in major overhaul.

CARGO HAULER — Handlers load cargo aboard Delta 880 for fast transit coast to coast.

VALUE ENGINEERS ORGANIZING AT SD

Notices went out to 300 representatives of more than 80 San Diego companies, military, and civic offices inviting them to become charter members of the new San Diego Chapter of SAVE (Society of American Value Engineers) at last night's membership dinner.

H. P. Williams, GD/Convair value control manager, is chairman of the planning committee in charge of SAVE organization in San Diego.

Those signing for membership at the April 10 meeting, held in the Convair cafeteria, will meet for an election of officers within the near future, he said.

E. D. Heller, GD/Pomona value control coordinator and newly-elected SAVE national secretary, was a member of the panel giving aims and objectives of local SAVE organization.

Others were Anthony R. Tocco, president of the national SAVE organization; J. S. Rensen, Los Angeles SAVE program chairman; J. A. LePage, Rohr Corp.; H. F. Hansen of United Air Lines; and D. D. Shirk of Solar.

HELLER SPEAKER AT SOCIETY MEETING

E. D. Heller, General Dynamics/Pomona value control coordinator, was main speaker last week at the Industrial Estimating Society of San Diego, Inc. Meeting was at Town and Country Hotel in San Diego. His topic was "Value Control and the Estimator."

Delta Gives 880s Credit As Partly Responsible For Jump in Air Cargo

Delta Air Lines is crediting their Convair 880 jetliners with a great share in the airline's upsweeping cargo business.

Since Delta began jet service cross-country from southeastern points to California last June, Delta's cargo business has shown marked increases over the same periods in the preceding year. In February, alone, there was a 46 per cent increase over that month a year ago.

Convair 880s fly about a quarter of Delta's total cargo ton miles.

Delta now operates six jet flights daily from the southeast to California with 880s flying four of the schedules.

"Jets have been the big boost to the upswing in cargo," said Delta's manager of cargo, John Pogue.

"Specifically, in the case of the 880, its speed and turn-around capability offer great utilization. Frequency is better than great lift in cargo shipping, and the 880 certainly provides the frequency."

Delta is the only airline which serves a number of the nation's top missile areas—Cape Canaveral, through Orlando; Houston, New Orleans, and Huntsville, Ala., through Birmingham, all linked with California points.

"Cut flowers from California provide Delta with one of its best West Coast accounts," Pogue said. "Flowers can be shipped from Southern California in the morning and delivered to florists in the southeast during evening of the same day."

Delta, first airline to fly the 880, now operates 12 of the Convair jet transports with four more to be delivered in the next few months.

It will expand its network with through-plane jet service between Los Angeles and San Juan, Puerto Rico, on the first of May. In addition, two round trips weekly will be operated between Los Angeles and Montego Bay, Jamaica, and Caracas, Venezuela.

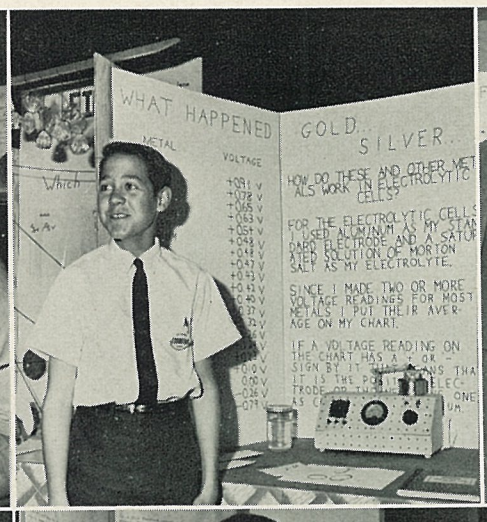
Delta began 880 flights from San Francisco to Caracas last December.

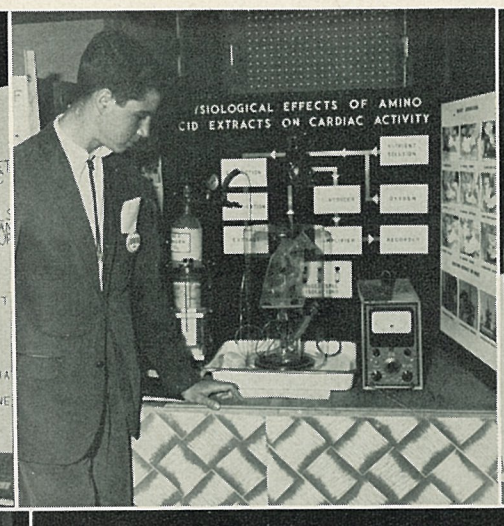
GD/Astro Engineer To Keynote Course

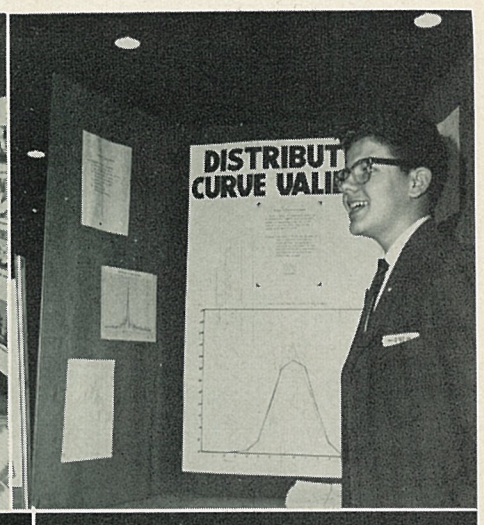
John McLeod, General Dynamics/Astronautics engineer, will deliver the keynote address at the Eleventh Annual Instrument Short Course to be held April 17 and 18 at Los Angeles Harbor College, Wilmington.

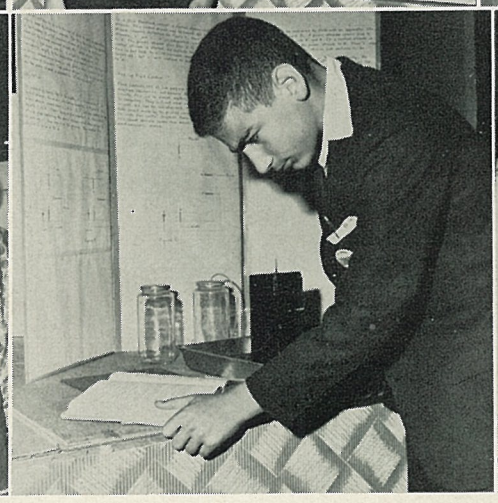
He will speak on "Measurement and Control—the Challenge Today and Tomorrow."

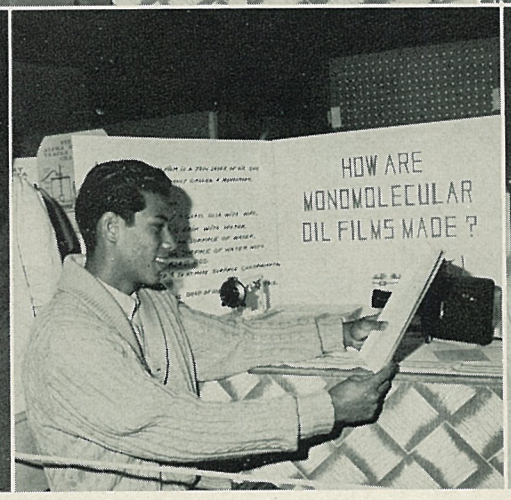
". . . I hope you don't mind . . . I couldn't find the cork."











YOUNG SCIENTISTS—Among those exhibiting at Science Fair in San Diego last week were many General Dynamics boys and girls. Top row, from left: Alex Lorentson, son of Mr. and Mrs. A. Lorentson, and partner, Ron Grube; Gregory Simmons, son of Mr. and Mrs. Webb Simmons; John Murphy, son of J. J. Murphy; James Stingle, son of Mr. and Mrs. J. M. Stingle. Lower row: Diane Sylvester, daughter of Mr. and Mrs. D. C. Sylvester, and Mary Hicklin; Jeff Greensite, son of Mr. and Mrs. Arthur Greensite; Glenn Scott, son of Forrest L. Scott; Mike Creutz, son of Mr. and Mrs. Edward Creutz, and his partner, Mary Russell.

STUDENTS COMPETE IN MATH CONTEST

Some 300 students from 48 San Diego County high schools will participate in the fifth annual Honors Mathematics Contest sponsored by General Dynamics/Astronautics.

On April 28, contestants will take examinations designed and administered by San Diego State College mathematics department in the college library. Awards to winners will be presented May 3.

Schools may enter teams of six students enrolled in second semester honors math or solid geometry courses. Individual students may be nominated to compete by schools not offering these courses.

Highest scoring students in each of three divisions — city, county and independent high schools—will receive an award of $100. In addition, this year a special award will be presented to the teacher and each member of the highest scoring team among the three divisions.

Players Will Stage First Production

Frantic and hilarious back stage adventures of a modern show girl set the theme for ARA Astro Players' first production of the season, to be presented in ARA Clubhouse May 17, 18, 19, 25 and 26.

The play, "Wake up Darling," will be directed by John Cone.

Named to the cast as a result of tryouts held late last month are Dick Elbe, Priscilla Ann Cullen, John Brigante, Annabel Audet, Dixie Quesenberry, Gretchen Garb Poindexter, William A. Quill, Art Wright and Genger Koger.

Motorcyclists Tour To Baja California

Eighteen riders on 16 motorcycles took part in ARA Astro Motors overnight "gypsy" tour to San Felipe, Baja California.

Astro Motors will hold a business meeting at 7:30 p.m., April 18 in the ARA Clubhouse.

Astro Golfer Aces Singing Hills Hole

Howard Pohlenz, Dept. 141-1, of General Dynamics/Astronautics scored the first hole-in-one of his relatively short "career" as an amateur golfer recently.

Playing with a group of friends March 25, he aced the 231-yard 17th hole at Singing Hills.

Managers Meetings Scheduled As Plant Softball Season Nears

League organization for ARA plant softball will get under way with two managers' meetings later this month. Some practice sessions have already been held, and season's play will open May 7.

Managers or representatives of all first shift teams wishing to take part in the softball program have been asked to attend a meeting at 5 p.m., April 23 in ARA Clubhouse.

Their second shift counterparts will meet the following day (April 24) at 3 p.m.

ARA Commissioner Tim McPherson has announced that Linda Vista field is now available for first shift practice games at 6:45 and 8:20 p.m., Monday through Friday, while second shift teams may practice at 11:30 a.m. and 2:30 p.m., Monday through Thursday.

Playing equipment may be drawn from ARA Clubhouse from 7:30 a.m. to 4:30 p.m., daily.

Use of the lighted field in ARA Area will be held to a minimum prior to opening of the regular season to maintain it in top condition.

Managers may contact McPherson at ext. 1111.

Toastmistress Club Organizing at Astro

Formation of a Toastmistress Club has been announced at GD/Astro, with an organizational meeting scheduled for 7:30 p.m., April 23 at ARA Clubhouse.

The organization offers women an opportunity to improve self-confidence, and to develop poise and assurance in both conversational and formal oratorical situations.

Additional information and registration is available from Dee, ext. 1111.

Rally Route Will Be Scenic

Jack Stevens "ain't talking," but if he were he'd be a good man to contact concerning Astro Sports Car Club's Atlas IV Rally coming off April 29.

By early this month Stevens had logged something like 3,000 miles in his Porsche, checking, rechecking and improving on the route. Like most club members Stevens will not compete, but will help administer.

Scenic beauty played a big part in selecting the route, which will end eventually at Marty's Valley Inn near Oceanside. Drivers will range from "seat of the pants" "sight-seers" to navigational magicians, all vying for 30 trophies.

Rallymaster George Lahey, ext. 3206, will supply information.

CLOSE TIES—H. J. Palen Jr., left, GD/Astro resident engineer at Rocketdyne, presents Atlas model to J. J. Griffin, recently named Atlas program director for Rocketdyne. Associated with Atlas program since 1957, Griffin will direct that firm's part in overall program.

ARA-CRA Marksmen Plan April 22 Match

Pistol marksmen representing recreation associations at Convair and Astronautics will tangle April 22 in annual inter-division matches to be held at the San Diego Police Range.

Four members of the winning team will receive individual trophies, with a perpetual trophy going to the winning division.

Volleyballers Begin Action

GD/Convair and Astro volleyball teams went into action last week in the current IRC volleyball tournament.

First games in the Wednesday League were April 4; Friday League, April 6.

Tonight (April 11) Convair Engineers will meet the Hounds (Astro) and two other Astro teams, Astronets and Reliables, will battle at 7 p.m. in Balboa Park's Muni Gym. At 8 p.m. Support Documentation (Astro) will play City Engineers.

In the Friday League (April 13), Convair Spacemen will meet Project Support (Astro) and Park and Recreation will play Design (Astro) at 7:30 p.m., Muni Gym.

J. R. King Is President Of ARA Fishing Club

J. R. King (Dept. 222) is new president of ARA Fishing Club following that group's annual election of officers.

John George (Dept. 143) is the new vice president; Nat Gerston (Dept. 152), secretary; and C. M. "Tex" Ray (Dept. 970), treasurer.

Club dues ($1) are now payable and include the employee and all members of his immediate family.

Linksmen to Play Bonita April 21, 22

Starting times for ARA golf sweepstakes at Bonita April 21 and 22 are now available from Dee, ext. 1111. Golfers requesting times are asked to give names, departments and extensions for members of their foursome.

Commissioner John Sentovic has announced that golfing hats will be available for golfers who have established a handicap at Astronautics. Hats cost $1.25, and only one to a customer will be sold.

Pistol Team Of Five Named

Russ Oliver, Roland Schneider, Ronnie Legg, Ken Bunker and Ralph Sanderlin have been selected for positions on Astronautics ARA's yearly pistol team following tabulation of year-long aggregate scores.

These five, with scores of 3,252, 3,172, 3,162, 3,100 and 3,011 respectively, chalked up top honors in competition including .22, .38 and .45 events throughout the year.

Sanderlin, with a 286; Roscoe Anderson, with a 280; Leo Berger with a 265; and Vern Weaver with a 230 paced each of four classes at the March 25 Pistol Club shoot in the .22 Police course. The .45 short National also went to Sanderlin with a 270. Harold Sicard, 257, and Ronnie Legg, 257, trailed.

Coineers Plan Installation

Installation of officers for the coming year will highlight a 7:30 p.m. meeting April 18 of the Astronautics Coineers to be held in ARA Clubhouse.

New officers are: Bob Earhart (Dept. 401), president; Joe Givens (Dept. 410), vice president; Max Daugherty (Dept. 573), secretary; Harry Freeman (Dept. 811), treasurer; and James Watt (Dept. 350), board member. Paul Hamm, board member of the California State Numismatic Association, will be installing officer.

Displays to be shown will follow a "Coins of the World" theme in conjunction with that used in National Coin Week. Free Canadian nickels will go to the first 40 persons attending, according to Commissioner Joe Garside.

Welder Unit Names Astro Men Officers

Three members of GD/Astro applied manufacturing research and process development (Dept. 290-2) are among incoming officers of the San Diego Chapter, American Welding Society.

W. J. Kairot is chairman; R. C. Manary, first vice chairman; and R. D. Gallagher, recording secretary. All are development engineers in Dept. 290.

Also to be installed at the group's meeting at 8 p.m., April 18 at Midway Chuckwagon is R. T. Vredenbaugh, GD/Astro Dept. 141-4, program chairman.

One Idea After Another Leads to Cut in Cost Of Pin From $2.71 to 20c

A chain of cost-saving ideas over the past 14 months has slashed the cost of a one-inch Atlas booster pin from $2.71 to about 20 cents at General Dynamics/Fort Worth.

Since about 18,000 of these small steel chrome-moly separation pins are used yearly, the annual savings would be about $45,000, estimates M. J. Scott, suggestions supervisor.

The pins are later linked with the Atlas second stage to keep the two sections from "slipping" while the big bird is in flight.

Of the original $2.71-per-unit cost, three cents went for material, 18 cents for manufacturing labor, and $2.50 for outside processing.

First in the series of cost-cutting ideas came in February, 1961, from three separate areas: Mrs. L. D. Murphy, Dept. 22-5; H. H. Langham Jr., then Dept. 41, and F. D. Foreman.

Their employee suggestions called for essentially the same steps: eliminate some of the expensive processing, such as treating with methyl ethyl ketone, duplicating measurements, and hand-polishing pins with gauze. Another marginal operation—wrapping pins individually—was discarded for quantity boxing.

These suggestions sharply reduced the cost of a single pin to 77 cents—55 cents of which was for processing. Ultimately, it will net the three employees nearly $3,800 in cash awards.

"Really excellent ideas," President Frank W. Davis told the ES winners at a special "Suggesters of the Month" award luncheon in the executive dining room.

"But," he confided to Scott in an aside, "55 cents still seems a pretty good price for treatment."

The observation sparked action in material departments and industrial engineering methods sections. After several value engineering-type conferences, processing was brought in-plant, reducing the cost to only 27 cents a pin.

In less than a year, a whopping 90 per cent cut in production costs. And there was more to come!

Last February, L. E. Bowlen, Dept. 30, pocketed a $208 check for an ES which cost only $7 to install and saved nearly $2,088.

Bowlen's idea was to resequence fabrication of the pins, cutting operations virtually in half.

Old methods required three operations on automatic screw machines, three on grinders and two on turret lathes. The new method cut this down to three operations on automatics and one on the grinder.

Result: cost of the pin was cut to slightly over 20 cents.

"We're proud of this thing," Scott said. "It shows you can very often make a sizable savings on even the smallest part. It also demonstrates that personnel at every level can work together—using our various cost-cutting vehicles—to make a product cheaper."

Aerospace Society To Hear Physicist On Optical LASER

General Dynamics members of San Diego chapter of the Aerospace Electrical Society will hear a talk on the basic physics underlying the optical LASER at tomorrow's (April 12) meeting.

Guests are invited to the 7:30 p.m. session in Balboa Park's Puppet Theater without admission charge.

Discussing the physics, performance, and potential of LASER (Light Amplification through Stimulated Emission of Radiation) will be Douglas A. Buddenhagen of the quantum physics department, Hughes Research Laboratories, Malibu, Calif.

An operating ruby LASER will be demonstrated. Performance characters of several different types and potential application of these new sources of coherent light in optical ranging, communications, medicine, metallurgy, will be given.

Information is available from E. F. Kotnik, GD/Convair, ext. 2724, Plant 1; or D. C. Ritchart, ext. 1818, Astro main plant.

Chemical Engineer's Article Published

E. C. Gear, senior chemical engineer, has qualified for a General Dynamics/Electronics writing award, announced William Lawrence, general manager at San Diego.

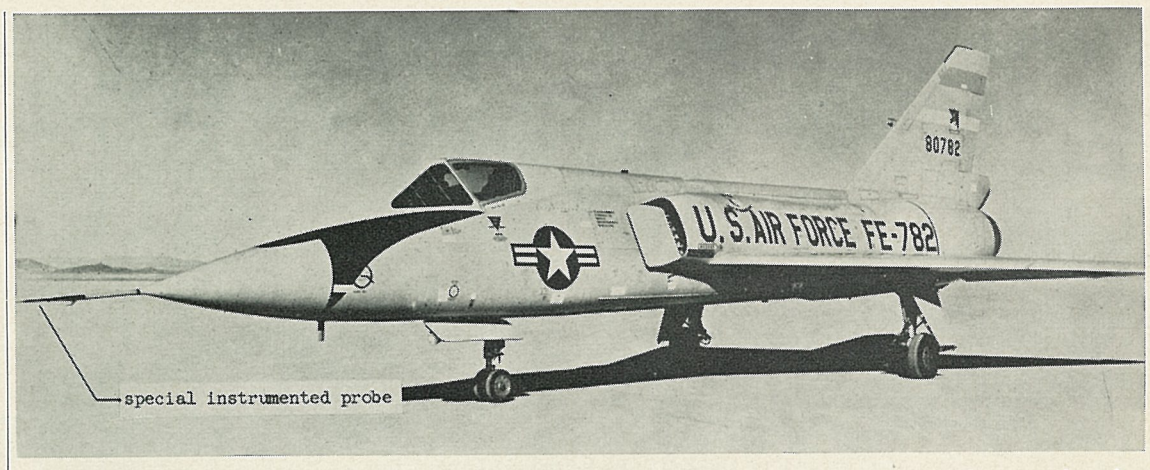
Gear's article, "Manufacturing Molded Electron Guns," which appeared in a recent issue of Electronics magazine, made him eligible for the $150 award.

He was project engineer for the two-year research and development program initiated by GD/Electronics and later sponsored by the U.S. Navy Bureau of Ships. The new manufacturing technique will make intricate cathode-ray tube electron guns more rugged than conventional assemblies now in use.

Training Committee Meets in New York

P. H. Selby of General Dynamics/Convair was in New York last week as delegate at the semi-annual session of the Society of Automotive Engineers' training committee.

Selby, flight training supervisor, represents the division on the committee, a section of the Society's aerospace council. Membership includes delegates from more than 40 companies, industries, airlines, and FAA throughout the country.



INSTRUMENTED—NASA photos show F-106 instrumented for sonic boom research in conjunction with B-58 Hustler. Tests were at 40,000 to 50,000 feet at Mach numbers from 1.5 to 1.7.

F-106, Hustler Team in Sonic Boom Research

A B-58 Hustler equipped with multiple weapons, and a F-106 specially instrumented to measure pressure while flying in the Hustler's flow field, assisted in recent sonic boom research at Edwards AFB.

Classified results of tests will be used to document lift and "volume components of the sonic boom pressure signatures for subsequent correlation with theory and with possible wind-tunnel and rocket-sled studies."

Air Force, National Aeronautics and Space Administration, and Federal Aviation Agency conducted the tests.

The F-106 was positioned so that penetration of the B-58 flow field was made from the rear at an incremental Mach number of about .25.

Data was obtained at distances from about 1,500 feet to 10,000 feet below the generating airplane and at about 1,500 feet above.

Penetration had to be made in the vicinity of Edwards bombing range, where optical tracking equipment was located. This fact—plus different operating characteristics of the two aircraft—required precise planning by the flight crews, engineers reported.

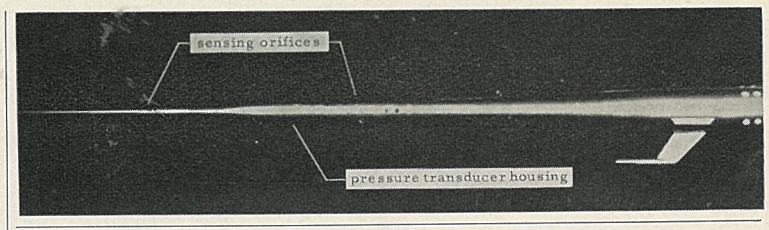
Tests were conducted at altitudes of 40,000 to 50,000 feet, at Mach numbers from 1.5 to about 1.7, and for a wide range of gross weights.

An attempt was made to study "as wide a range of lift coefficients as possible."

Special pressure measuring equipment of the F-106 was designed, fabricated and wind-tunnel tested at NASA Langley Research Center.

Transducers were housed in a special probe designed to fit onto the front of the standard Air Force nose boom of the F-106. Pressure information was recorded on a standard film-type flight recorder in the rocket bay of the F-106. These recordings were correlated with optical tracking information and appropriate atmospheric sounding information.

Meanwhile, sonic fatigue testing on a specially-built B-58 "wing" was under way at GD/FW jet engine test facility.



Programmed Instruction Now Available in Published Form

Programmed instruction is taking concrete form at General Dynamics/Convair with completion of seven projects, now in published form.

Concentrating on specific GD/Convair products, the training programs were selected as particularly applicable for use by either commercial or military customers.

All of the training instruction formulated by GD/Convair's expanding programming groups is adaptable to mechanical teaching devices, pointed out O. W. Harper, manager of customer service. GD/Convair has been developing its capability in the programming field since the first of the year.

Completed programs, ready for the market, are "Rocket Test Adapter," "Nuclear Safety," "Ejection Decision," "F-102 Arresting Hook," "880 Landing Gear," "'B' Seat Equipment," and "KIFIS—Instruction of Pilots on the Kollsman Integrated Flight Instrument System."

Potential customers, commercial and military, are being contacted in a survey of sales possibilities.

In a definement of assignment within the division's programming efforts, all projects pertaining to training of flight personnel, customer—both military and commercial, and GD/Convair, are handled by production flight. P. H. Selby, flight training supervisor, heads this section of programming.

Customer service, under Harper and Roy Sommers, chief of field service, is responsible for programming of maintenance training material.

Howard Kennedy, manager of technical publications, and his technical writing sections, program any project related to training aids and materials.

Programmed instruction for in-plant factory training will be done by educational services section under H. W. Rubottom, chief.

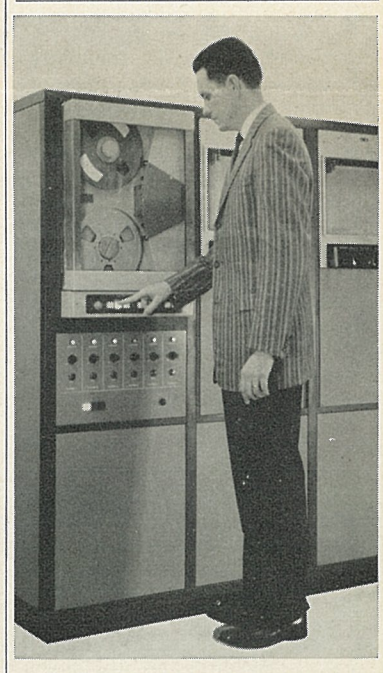
Now in the planning stage is a program for value control training.

Pet Dealer Gets Fox Captured in Convair

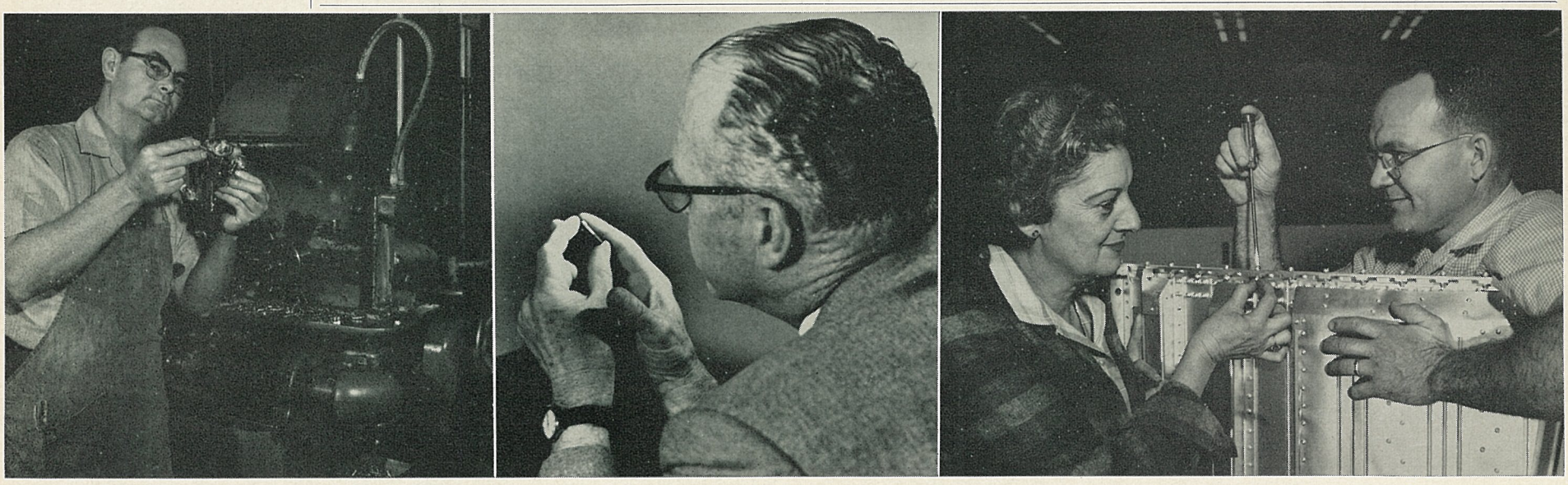
That wily fox (and, folks, it was a fox) captured a couple of weeks ago in GD/Convair's Bldg. 3 has found a home.

Raymond Lucero of Dept. 128, who trapped the young animal, has sold him to a Lemon Grove pet dealer who intends to train him.

The veterinarian who examined the critter identified him as a true fox—not the coyote some would have him!



ONE OF A KIND—Ed Matthews, GD/Electronics design draftsman, shown with new $75,000 plotting system designed and built by GD/Electronics at San Diego for Arnold Engineering Development Center, Tenn. System will read magnetic tapes generated by IBM 7070 computer.



STORY OF A PIN—Thanks to series of ideas, cost of one-inch pin held by M. J. Scott, GD/FW suggestions supervisor, in center picture, was drastically reduced. At right are Mrs. L. D. Murphy, Dept. 22-5, and H. H. Langham Jr., Dept. 41, who started chain. At left is L. E. Bowlen, Dept. 30, whose idea reduced automatic screw machine operations from eight to four. Ideas turned in over 14 months cut pin cost from $2.71 to 20 cents.

SOARING MEET—At right, modelers from ARA and CRA clubs gather at registration booth to check in planes before Tri-Club Free Flight Meet at Hourglass Field. At left, Jack Finn of GD/Electronics, who placed third in ½A gas event, launches free flight model.—Photos by ARA Commissioner Chuck Ogle.

DEXTER WINNER IN MODELERS CONTEST

Sunny skies and balmy, calm "air" made a perfect day for launching models in the AMA sanctioned Tri-Club Free Flight Meet March 25 at Hourglass Field.

Fifty-two modelers from San Diego and Los Angeles competed in the meet, sponsored by GD/Convair Aeromodelers, GD/Astro Astromodelers, and San Diego Orbiteers.

Three General Dynamics contestants placed among the top contestants. Rolland Dexter of General Atomic, contest director, took first place trophy and merchandise prize in rubber motor powered class with a time of 14 min., 52 sec. Jack Finn of GD/Electronics was third with time of 12 min., 58 sec., in ½A gas event. R. Hood of GD/Astro placed fifth in the popular Nordic towline glider event.

Merchandise awards, including such items as engines, mechanical timers, and balsa wood packages went to first, second, and third winners, together with trophies to firsts and ribbons to second through fifth places.

CRA club members assisting Dexter with timing chores included Nat Antonioli and Don Larsen, Aeromodelers president.

Flying sessions for CRA and ARA modelers are held each weekend, Saturday and Sunday mornings from 7 a.m. until noon, at the Clairemont Mesa flying site.

Les Allen President, Leland Sanders Vice, As Riding Club Outlines Future Programs

ARA's riding arena in the Recreation Area will be the scene this year of a number of horse shows presented both by ARA Riding Club and other area horsemen's organizations, according to Art Smith, ARA commissioner.

The group plans to award a trophy for the highest number of points attained in a show in the arena during the coming year.

New officers recently elected are Les Allen, president; Leland Sanders, vice president; Jack Harrison, treasurer; and Ardella Sorkness, secretary.

The club's first goal is expanded membership, to take advantage of additional horses and riding equipment to be purchased by the group.

Old-fashioned "hay-rides" are planned using a wagon recently acquired, and members soon will begin refurbishing a building for use as meeting and tack room adjacent to the riding arena.

More information on Riding Club is available from ARA Headquarters, ext. 1111.

Field Trip Planned To Rainbow Ridge

ARA Rockhounds will meet at 7:30 p.m. tomorrow (April 12) in ARA Clubhouse to discuss plans for a field trip to Rainbow Ridge in the El Paso Mountains.

Also on the agenda are discussions of future visits to the Kramer Hills area for collection of petrified palm wood, and to the gem show at Boron, Calif.

Rockhounds' March field trip took 26 members to the Calico Mountains north of Yermo, Calif., where specimens of multicolored agate and petrified palm were collected.

Robert Killian New Second Shift Prexy

Members of the Swing Shift Coin Club will gather at 1:30 a.m. April 19 to install new officers.

They are: Robert Killian (Dept. 223), president; Harold Bauer (Dept. 143), vice president; Ted Brown (Dept. 223), secretary; Ferrell Scott (Dept. 223), treasurer; and James Porter (Dept. 223), board member.

An April 22 picnic is planned for ARA Recreation Area. Wives and children will take part.

Pierce to Discuss Indians of Peru

GD/Astro's Ben Pierce who has conducted anthropological studies in Peru will discuss the Indians of that country at a meeting of ARA Archaeology Club, 7:30 p.m., April 25 in ARA Clubhouse.

In addition the meeting will include planning for club excavation of a small dwelling site near Poway, according to ARA Commissioner Randy Miller.

Summer Bowling Leagues to Roll

Summer bowling leagues to roll at both Clairemont and Parkway Bowls are now organizing, according to Jack Boyle, ARA commissioner.

All types of leagues are planned, with application now available at employee services, Bldg. 8. Additional information on the ARA bowling program is available from Dee, ext. 1111.

Explorer Club To Visit Ogilby

One of the most ambitious Explorer Club field trips ever undertaken by the ARA-sponsored group at Astro comes off April 21 and 22 with a weekend visit to Ogilby, near Yuma.

Once a prosperous gold mining town, the site is now a ghost town complete with old mines, buildings, etc. All of which lead the group to feel they have an interesting and rewarding experience in store.

Final plans for the trek will be made at 7:30 p.m. April 19 when the Explorers hold a regular meeting in ARA Clubhouse. Color slides of the Ogilby area will be shown.

Featured speaker will be Dr. Paul H. Ezell, professor of anthropology at San Diego State, who will speak on "Archaeology for the Explorer." His talk will include information on Indian tribes of California and Baja California of yesteryear and artifacts that may be traced to them. He will also point out how the explorer can contribute to science, according to Larry Beaver, ARA commissioner.

Auxiliary Will Tour Astro's Clubhouse

Astro Wives Auxiliary will be guests of ARA during an informal social meeting and tour of ARA Clubhouse and Recreation Area from 9:30 to 11:30 a.m., April 24.

Astro wives are asked to contact Mrs. Carl Priest, chairman, BR-7-2309; Mrs. William Kuzyk, BR-8-1834; or Mrs. Jack Harper, BR-3-4463, for further information.

The group will gather in the clubhouse lounge for refreshments, which will be served throughout the morning. There is no charge for the event.

Skiers Slate May 5-6 Trip

Skiing enthusiasts, or those who just like to ski-watch, will have a last chance at the high peaks on the CRA-ARA spring trip to Mammoth Mountain May 5 and 6.

Reservations must be made before April 23, said Joe Harris, CRA commissioner.

Lodging accommodations are being reserved at Mammoth Mountain Inn. Rates range from $33 for non-skiers for transportation, two nights in the dormitory, two breakfasts, one dinner, to $41.75 for the same package deal plus rope tow and one or two ski lessons for skiers. Extra ski lessons are $3 each.

Extra charges are made for chalet rooms, from single to five persons.

Transportation will be by bus leaving the GD/Convair executive parking lot next to Bldg. 19 at 5:30 p.m., Friday (May 4). It will go on to Astro site to pick up Astro skiers at the parking lot west of Bldg. 1 at 6 p.m.

For those wishing to eat on the bus, a sandwich luncheon will be served for 85¢ or chicken dinner, $1.25.

A deposit of $10 must be made when signing for the trip before the April 23 deadline date. Balance is due when boarding the bus. No cancellations will be accepted after April 23.

Reservations may be made with Harris, home phone, AT-4-0278; Helen Navoy, CY-5-2489; Gene Rockafeller, Astro site, ext. 2868.

Spring Tennis Tourney Coming

Entries are now being accepted for the fifth annual ARA spring tennis tournament April 28, 29 and May 5 and 6 at Morley Field courts.

GD/Astro employees and members of their families have been invited to compete in men's singles and doubles, women's singles, and mixed doubles.

No entry fee will be charged, and trophies will go to winners and runners-up in all classes. A consolation round for losers in the first flight of men's singles is also planned.

Additional information and tournament registration is available from ARA Commissioner Ben Cendali, Sycamore ext. 58.

AROUND THE BASES—Top left: GD/Astro employees at Schilling AFB gave $1,400 to March of Dimes through Con-Trib-Club recently. Astro's John Taylor and Don Collingham are shown handing checks to Jerry Simpson, Salina campaign chairman. Top center: P. M. Prophett, director of base activation, accepts safety trophy for Altus AFB from E. D. Bryant, vice president-operations; and P. T. Gardner acts for Fenton Miller in accepting safety trophy won by Edwards RS. Top right: GD/Astro golfers at Edwards RS collected trophies at Management Club tourney. Fred Pease and Dave Jorgensen hold first place awards, while Sam Moody, ARA commissioner, passes on traveling team trophy to V. L. Allwardt, GD/Astro operations manager at Edwards. Lower left: W. H. Dunner, GD/Astro operations manager at Plattsburgh AFB, recently presented "Atlas" volume and "Dynamic America" to Public Library. He is shown with Laura Ingalls and Mayor John Tyrell. Lower center: More than 300 danced at Dept. 576-3 party last month at Vandenberg AFB. Shown are K. E. Newton, GD/Astro manager, Ernest A. Millar, Elton Reese, Donald Richardson, Robert Burns. Lower right: zany hats featured GD/Astro Wives Club meeting at Warren AFB. Shown are Mmes. Bernardo Reyes, Robert Whitere, B. W. Piatt, Joe Pronovost, Leonard Felts, Bill Jack, Howard Doutt.

"INITIATION"—Square Dancers from GD/Convair, GD/Pomona and GD/Astro had housewarming March 31 at new Astro Clubhouse. In top left are Mr. and Mrs. Maury Scholz of Convair, Mr. and Mrs. Marty Stutz of Astro and Mr. and Mrs. Lloyd Scarborough of Pomona. At top right is head table at dinner that preceded dancing. Recreation presidents from all three divisions were present. Lower photo, center, shows overflow dancers in lobby.

ARA Calendar

(GD/Astronautics Recreation Association has some 40 activities in operation for employees. For information call ARA Headquarters, ext. 1111.)

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ASTRO LENS — Meeting and monthly competition in black and white, color, 7:30 p.m., April 15, Photo Arts Bldg., Balboa Park.

BOWLING — Summer leagues for Clairemont and Parkway now forming. Applications at employee services, Bldg. 8, or ARA Headquarters.

EXPLORERS — Field trip to Ogilby, Ariz., April 21-22. Final plans at meeting, 7:30 p.m., April 19, ARA Clubhouse.

FLOWER SHOW—ARA-CRA-sponsored rose show, Floral Bldg., Balboa Park, 1-6 p.m., April 15. Entries welcome.

GOLF — Sweepstakes at Bonita, April 21-22. Starting times from Dee, ext. 1111.

MOTORCYCLES — Meeting 7:30 p.m., April 18, ARA Clubhouse.

PISTOL — Astro vs. Convair shooters in annual interdivisional matches, April 22, San Diego Police Pistol Range.

REDUCED PRICE TICKETS —"Westside Story," Capri Theater. Special showing, April 22. Tickets at $1.40, $1.75 available at employee services office, Bldg 8.

SOCIAL CLUB — Organizational meeting for 18-and-older group, 7:30 p.m., April 28, ARA Clubhouse.

SOFTBALL — Organizational meetings for department team managers in ARA Clubhouse. First shift, 5 p.m., April 23; second shift, 3 p.m., April 24.

TEEN-AGERS — Dance 7:30-11 p.m., April 21, ARA Clubhouse. Casual dress. One guest with each member.

TENNIS — Spring tournament, April 28, 29, May 5 and 6, Morley Field courts. Call Ben Cendali, Sycamore, ext. 58, to enter.

TRAVEL — Group tour to Hawaii, June 3. Price of $299 per person includes air travel, hotel, side trips and special events.

TWILIGHT GOLF — Entries now being accepted at employee services, Bldg. 8. Two leagues (May 7-July 6), (July 9-Sept. 7), planned. Play Tuesdays and Thursdays, Stardust Country Club, 4:30 and 5 p.m.

WIVES AUXILIARY — Informal social meeting, tour of ARA facilities, 9:30-11:30 a.m., April 24.

Sports & Recreation

PREPARATIONS — Everett Henderson, ARA commissioner, Dick Mitchell, chief of employee services, and C. L. Lewis, Astro Garden Club president, examine display vases to be used during joint ARA-CRA Rose Show April 15 in Balboa Park's Floral Building.

ARA-CRA Spring Rose Show Open To All Dynamics Employees

Visitors and competitors alike will be welcomed at the joint ARA-CRA Spring Rose Show in the Floral Association Building, Balboa Park on April 15.

All General Dynamics employees, regardless of membership in ARA or CRA Garden Clubs, have been invited to enter blooms. Containers will be provided.

The show is open to the public from 1 to 6 p.m. There is no admission charge.

Entries will be accepted at the Floral Building between 7 and 11 a.m. on the day of the show, and judging will be conducted between 11 a.m. and 1 p.m.

The show will include 32 rose classes in singles, threes, and sixes; six arrangement classes ranging from miniature (less than 4 inches high by 3 inches wide), to tall (over 20 inches high and 18 inches wide); and dry arrangements.

Three corsage classes—roses, orchids, and "other"—are included, as well as "open" classes for children.

Rosettes will go to eight "best of show" winners, and first, second, and third place winners in each class will receive ribbons. Merchandise prizes will go to all those receiving ribbon or rosette awards.

Commissioner J. E. Henderson has estimated that 2,500 visitors will view more than 1,000 blooms during the show's run.

Edwards Linksmen Win Club Trophies In February Tourney

EDWARDS RS—Fifteen golfers representing GD/Astro operations here took part in a February Antelope Valley Management Club tournament and came home with six individual awards and the traveling team trophy.

Fred Pease won first in the championship flight and Dave Jorgensen topped the first flight. Other award winners included Dave Scharlach, John Miller, Cecil Seaver and Al Coleman.

In other golf action, L. M. "Chuck" Barnes, Glenn Baxter, George Burks and Fred Pease came in first as a team in the regular mid-winter golf league.

Over the past weekend (April 7) three trophies went to winners in a regular monthly event. Directing golfing activities here are Sam Moody, commissioner, Larry Sussman, handicap chairman, and Dan Jensen, tournament chairman. Special "assistants" are reservationists Doris Shelton and Duane Granger.

Three Divisions Send Dancers to Jamboree

In a rollicking fun-fest, square dancers from GD/Convair, Pomona and Astronautics helped "initiate" the new ARA Clubhouse at Astro with a General Dynamics Jamboree recently.

Held March 31, the affair drew 450-plus dancers during the evening. It was the first "official" function held in the recently-completed center section of the clubhouse.

Each of the three General Dynamics divisions was represented by about 80 dancers, with guests from other clubs rounding out the number. Guest callers took the floor from time to time to keep the square rolling.

One popular number was a "square dance twist."

Pomona PRA Commissioner Lloyd Scarborough and his group arrived via two chartered buses. They were greeted by CRA Hoedowner Commissioner Maury Scholz and ARA Astro Nauts Commissioner Marty Stutz.

The Astro Nauts were hosts at a pre-dance dinner.

Special guests included the chiefs of employee services, incoming and out-going officers of the three recreation associations involved. Brief speeches were made by some of those taking part.

The Astro-sponsored event was one of two held each year which bring square dancers together. A return visit with Pomona is now tentatively set for fall.

Hawaii Travelers Urged to Sign Now For Jaunt This Summer

A chartered Pan American DC7C aircraft is scheduled to leave San Diego June 3 carrying GD/Astro employees and members of their families on a Hawaii trip billed as "Eleven Days in Paradise."

The tour is being offered under ARA sponsorship for the bargain price of $299 per person, including transportation, accommodations at the Reef Hotel on Waikiki Beach, and a variety of special events.

Reservations are now being accepted with a deposit of $50 per person, at ARA Clubhouse between 3:30 and 5:30 p.m., daily.

Before returning to San Diego June 14, travelers will have taken part in a tour of Oahu Island, an excursion to Mt. Tantalus, "native" luau feast, and a cruise around Pearl Harbor.

An alternate plan omits the luau and side trips, providing hotel accommodations and transportation only at a cost of $266.

Eligible for tour participation are persons employed by GD/Astro for at least six months, as well as members of their immediate families.

Absolute deadline for signing up for the tour is May 7. However, travelers were asked to sign up as soon as possible to assure adequate planning time.

If interest warrants, a second trip may be arranged for June 13 departure.

Mixed Social Club Planned at Astro

A proposed ARA social club for single men and women 18 and older will be explained at an organizational meeting at 7:30 p.m., April 28 in ARA Clubhouse.

GD/Astro employees interested in forming such a club have been invited to attend to offer suggestions for the group's operation. Dancing will follow the business session.

The group is proposed as an informal social organization enabling participants to widen circles of acquaintance through dances, card parties, and other events held once or twice monthly.

ARA TWILIGHT GOLF ENTRIES ENCOURAGED

Entries for ARA's two-league Twilight Golf program this year are being accepted at employee services, Bldg. 8, from 11 a.m. to 1 p.m., and 4:30 to 5:30 p.m. week days.

First league of the program—introduced as a two-unit operation for the first time this year—will play from May 7 through July 6, while the second league plays July 9 through Sept. 7.

Winners from both leagues will vie in a round-robin play-off for the team championship.

Starting times are 4:30 and 5 p.m., Tuesdays and Thursdays at Stardust (Mission Valley) Country Club. Team entry fee is $20 (green fees not included), payable in advance.

Entries close at noon May 1.

Applications, in the form of AVOs, should list full names of all players, department numbers, extensions, team name, captain and co-captain, and day and time preference.

Pomona Ups Audio-Visual Job Stations

Audio-visual production of electronic missile components is in full swing at General Dynamics/Pomona.

Introduced on a limited scale last year, audio-visual has been so successful that some 29 A-V work stations have been activated and are now in use in the electronic assembly department.

"In general, almost everyone connected with the audio-visual stations is pleased with the results," R. G. Bradley, foreman of electronic board sub and package assembly, said. "Use of the system has resulted in more uniformly-built components, a somewhat higher production rate, and a reduction in assembly errors.

"The latter factor is, in my opinion, the most important. Rework caused by faulty workmanship has already been reduced drastically on components assembled at the A-V work stations, and it should be reduced even more as we become more accustomed to the system," he added.

"I believe that audio-visual is definitely here to stay, and that it will be much more widely used throughout industry in the very near future," Bradley said.

Heart of the audio-visual work station is the A-V unit—a combination recorded tape playback unit and color photographic slide projector. The tape gives a step-by-step narrative of the assembly procedure, while a series of slides, coordinated with the tape, shows each step visually.

Tapes and slides for each assembly procedure are prepared by the tool engineering department (Dept. 24), with the assistance of the applied manufacturing research and process development department (Dept. 21). Although the time sequence is carefully controlled during the preparation of each set of aids, each operator can start and stop the A-V machine at any time, thereby setting her own pace. This also prevents arbitrary speedups.

Equally as important as the A-V device itself is the arrangement of the work station. The chassis of the part to be assembled is held in an adjustable holder which can be positioned by the operator at the most comfortable working angle and distance.

Small electronic components, such as resistors and capacitors, are kept in conveniently arranged and labeled bins. Tools, solder and other assembly necessities are also conveniently located.

WATCHING "TV"—Charlotte Hall, GD/FW Dept. 73, assembles chaff-dispenser electronic unit, following verbal and visual instructions offered by self-contained machine. Technique sharply reduced assembly time.

FW Tries Audio-Visual Technique in Assemblies

Some General Dynamics/Fort Worth employees soon may be following a "television script" rather than a blueprint in assembling certain aircraft parts.

The reason is an audio-visual machine, not much bigger than a portable typewriter, which has been used in Dept. 73 to cut assembly time of a chaff dispenser counter control unit by more than a third.

Audio-visual technique is one of several being considered by Dept. 23 (manufacturing research and engineering) as a means of furthering manufacturing state of the art.

The self-contained apparatus includes a one-quarter-inch magnetic tape playback deck, a unit housing 32 slides, 35mm, and an 8½ x 12 inch television screen.

The audio, or narrative unit, gives sequenced, step-by-step details of how to assemble the part. Color slides are synchronized with the vocal presentation.

"The machine is showing great potential for assembly of a complex apparatus like the chaff dispenser unit, which contains 450 wires, 75 terminals, and 15 relays," said R. K. Vance, Dept. 24-1 tool engineer.

"Another advantage of audio-visual is that it encourages uniformity," said Clarence Raub, Dept. 24-3 GSE design engineer.

"Much of the 'human' error in interpreting blueprints, process standards, technical orders, and other instructions will be eliminated, since the tape instructions and picture slides will be identical for everyone.

"Since the operator takes 'silent' instruction through earphones, he is usually able to concentrate fully on his immediate chore, almost completely oblivious to others around him."

To make the working environment even more pleasant, in some cases, soft background music is piped in "between" instructions.

"In most cases, it's much quicker for the employee to make an entire unit, taking detailed instructions from beginning to end," Raub said.

Other applications to date include: repair of alignment controller on navigation system in Dept. 75; calibration of a signal generator in Dept. 83; and projects in the planning stage.

"Although the audio-visual method is most commonly used for detailed assembly and subsystem work, other methods of improved work instruction are also being evaluated," Raub said.

This includes detailed written instruction; visual aids such as charts, sketches, and others; and tape playback.

GD/Fort Worth talent was used in compiling the first audio-visual presentation. Gordon Smith, engineering writer and television news commentator, did narration, Earl Campbell, technical writer, helped prepare scripts, and Aaron Murray provided photography.

Others involved in various departments include: Phil Green, nuclear physics engineer; Lee Lang, MTU; Dan Rhodes, engineering GSE design, and C. A. Bay, Dept. 23, who is spearheading the experimental projects at GD/Fort Worth.

Performance to date indicates a "strong potential" for use of audio-visual techniques.

A guidance committee composed of representatives from the major potential users in-plant is looking further into its potentialities.

Charactron Tube Production Moved to New San Diego Lab

General Dynamics/Electronics has occupied new production laboratories for its CHARACTRON Shaped Beam Tubes and reduced prices as a result of increased efficiency.

Tube production has been moved to a compact laboratory at 1895 Hancock Street, San Diego, where improved material handling techniques are being employed to speed manufacturing. A new clean room has been built, and the plant is air conditioned for environmental control.

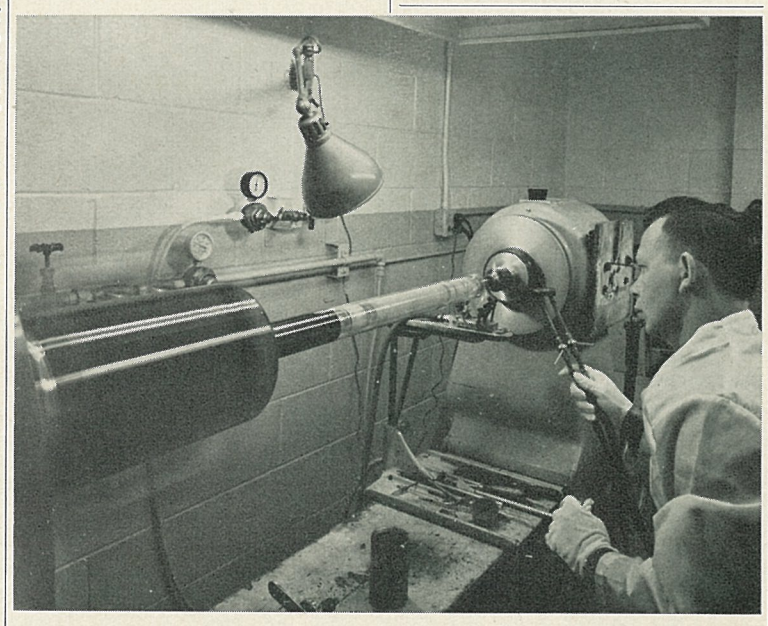
Modern high speed vacuum pumps are being employed in tube manufacture. Improved traps are resulting in increased yield.

Other steps taken to permit price reductions include stabilizing the types of production tubes in the line.

Nine standard tubes in the General Dynamics line have been reduced in price including seven preferred types. Custom designed tubes are also available at lower prices as a result of the new production techniques.

The price reductions apply to the entire line of tubes and components. An example of the reduction is the 45 per cent cut in the 5-inch tube now priced at less than $1,000 in single units and $500 in lots of 50 or more.

Special features of the CHARACTRON® Shaped Beam Tubes are high resolution and less maintenance. A minimum of supporting circuitry is required, which makes the tubes more economical to install and more reliable. Many of the tubes are still in service on the SAGE system after more than 20,000 hours of life.



TUBE PRODUCTION—J. S. Holt, GD/Electronics cathode-ray tube technician seals glass tube at lathe in new GD/Electronics tube production laboratories at San Diego.

Trainers 'Launch' Atlas in Practice

Several times daily at Vandenberg AFB, Calif., seven days each week, Air Force Strategic Air Command crews here man their stations and "launch" an Atlas ICBM.

Then they call it back and start over again!

The ultimate in realistic training, these "launches" are simulated on trainers so complete they include even closed-circuit "television" views of the proceedings.

General Dynamics/Astronautics trainer design (Dept. 321-5) has built three of the Atlas "F" series Crew Procedures Trainers (T-601).

Last week, newsmen were given a look at these trainers during ceremonies marking activation of the newly completed building which houses them.

GD/Astro officials present included E. A. Reynolds, director of product support; K. E. Newton, operations manager, and R. D. Bergen, chief of product support at Vandenberg AFB.

Also attending were representatives of Strategic Air Command Headquarters, Ballistic Systems Division, First Strategic Aerospace Division, and 576th Strategic Missile Squadron.

Each trainer consists of several units (including a remote instructor's console) occupying about 10,000 cubic ft., which simulate exactly all electronic equipment cabinets, controls and instruments operated by the crew of an "F" series Atlas underground silo site.

Each T-601 permits a crew to drill repeatedly on all procedures required to launch a missile, while their actions and reactions are monitored by an unseen instructor.

"This trainer provides the most complete procedure practice available to operational missile crews," Bergen said. "Training with a real missile must always stop short of a complete launch, and even these checkouts must be limited because they reduce the life expectancy of missile components."

With a real missile, the crew's only trouble-shooting practice comes if something actually goes wrong, while with T-601 the instructor can test his students by inserting more than 230 different technical problems.

He throws problems at the crew unexpectedly, adding realism by flashing one of 3[illegible] color slides on a device simulating the silo's closed-circuit television system.

At GD/Astro's Plant 2 facilities (San Diego), T-601 development was spearheaded by Vern Boyer, project engineer, and Joe Fenier, principal engineer, with Lee Lisak, Don Lemon, Frank Herron, Sam Kallaos, Hal Sander and Mel Nunn. Wes Magnuson is general supervisor, and Mel Hart, supervisor.

Working closely with trainer design personnel were Maj. A. R. Kilpatrick, BSD training equipment project officer; and Capts. Al Blair and Irving Baum, SAC project and training officers, respectively, at Vandenberg AFB.

The three trainers were designed, fabricated and delivered to the 576th Strategic Missile Squadron in only 13 months, and since their arrival have been in operation constantly.

All parts of each trainer are either operational panels, or exact replicas, although T-601 simulates all functions of the launch equipment — including hydraulic and pneumatic systems—electrically. Each T-601 includes 950 light indicators, 170 gauges and meters, 1,012 switches, dials and valves, and 75 miles of wiring.

SUPER-TRAINER—With E. A. Reynolds, GD/Astro director of product support at launch control officer's console, Maj. A. R. Kilpatrick, BSD, and Capt. Irving Baum, SAC, discuss new T-601 crew procedures trainer.

GD/Electronics Engineer Visits Antarctica on Reactor Check

Midnight is a fine time for taking color movies—in Antarctica, that is.

At other times the mid-summer sunlight was so intense that it was difficult to avoid overexposing film, relates Roger N. Blunt, section head in GD/Electronics' Data Acquisition and Reactor Controls Laboratory at Rochester, N. Y., who just returned from there.

Blunt spent slightly more than a month at McMurdo Sound, big U. S. base at the edge of the Antarctic continent, flying in on Jan. 29, and coming out March 4 on the last ship to leave McMurdo before winter closed in.

His assignment in Antarctica was to check out the instrumentation and control systems which were built at Electronics for the nuclear reactor installed there during the southern summer just past. He was there when the reactor "went critical" March 4, made sure the electronic equipment was working properly, and then was ferried out to the U. S. Coast Guard Cutter "East Wind."

The 2,450-mile voyage back to Christchurch, New Zealand—which was only a 10-hour flight on the way down—took seven days.

GD

ASTRONAUTICS EDITION

GENERAL DYNAMICS NEWS

Vol. 15, No. 9 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, April 25, 1962

READY, GENERAL—E. A. Reynolds, GD/Astro director of product support, turns over keys to new Atlas "F" training facility at Vandenberg AFB to Maj. Gen. Joseph J. Preston, commander, 1st Strategic Aerospace Division (SAC). Used to train crews to man silo launch sites, facility was designed, built and installed by Astro in just 13 months.

$35,263 Emergency Aid Extended in Six Months

A helping hand with a long reach—Emergency Aid—has been extremely active at General Dynamics/Astronautics of late.

During the first six months of the current fiscal year, this important Employees' Con-Trib-Club operation has passed on $35,263.70 to assist employees (188 cases) in meeting emergencies beyond their control.

Emergency Aid is for employees and their dependents exclusively. It is available wherever Astro folk work and is made as an outright grant, not a loan. No repayment is expected, nor is membership in Con-Trib-Club required to receive Emergency Aid.

A flat 10 per cent of Con-Trib-Club income reverts to Emergency Aid, which is administered from San Diego under direction of the Employees' Con-Trib-Club Board of Directors. Funds are disbursed at all off-site bases, as well as at San Diego.

A typical case involved the two-year-old son of an Altus AFB employee. Insurance benefits and personal resources of the family were exhausted in an effort to determine the nature of an illness. An appeal was directed to Emergency Aid. Arrangements were made to send the boy and his mother to Mayo Clinic where the ailment was diagnosed and treated.

"Our boy is back home now and doing nicely," the father wrote in thanking Con-Trib-Club. "We have reason to hope now for almost 100 per cent recovery."

(Continued on Page 2)

AUTO SEAT BELTS ON SALE AT COST

Top quality auto seat belts are now available for purchase at cost by General Dynamics/Astronautics employees through the safety section of industrial relations (Dept. 130-8).

Belts are sold at the safety crib, Bldg. 5, 9 to 11:45 a.m. and 12:30 to 6 p.m.

"A study by Cornell University indicates that use of seat belts can save up to 5,000 lives each year, and reduce the number of serious injuries in auto accidents by one third," said J. W. Garrison, chief safety engineer.

"In 1961, there were 1,400,000 serious injury highway accidents," he added.

Seat belt customers have a choice of seven colors—red, blue, green, black, tan, grey and white. Belts cost $3.84 plus tax each, and payment on the payroll deduction plan can be arranged.

Belts are of approved nylon construction with metal-to-metal fasteners. Installation can be done by a service station for a small charge, or as a "do it yourself" project.

DO IT YOURSELF—Lovely Ariane Hinckley, Dept. 578-3, attacks project with determination while installing safety belts recently made available by GD/Astro safety section at reduced prices. Metal-to-metal belts in seven colors are available at safety crib. They may be purchased by payroll deduction.

Club Election Ballots Cast

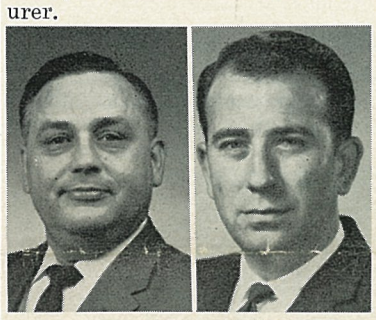
Political "pots" were boiling this week at General Dynamics/Astronautics where Management Club members were casting ballots for officers for the coming fiscal year.

C. C. Harper and E. V. Russell of Depts. 154-2 and 781 respectively are presidential candidates who head a list of 23 nominees for six elective offices and positions on the Board of Control.

Ballots are to be counted May 7 and 8 and winners revealed at the May 9 meeting. Installation will follow at the June meeting.

Only two nominations were made from the floor at the April 11 meeting. R. T. Bauman of Dept. 756 was nominated for first vice president and will run against R. G. Camp of Dept. 567-1. Sam Braun of Dept. 141 withdrew from the race after being named a candidate by the nomination committee.

Second vice president candidates are R. L. Craig (Dept. 130-7) and W. W. Johnson (Dept. 305-0). T. F. McCubbin (Dept. 210-0) and J. H. Wills (Dept. 193-1) are candidates for treasurer.



C. C. Harper Jr. E. V. Russell

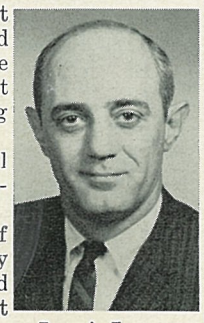
J. C. Croft (Dept. 130-3) and J. L. Mumford (Dept. 521-2) are running for recording secretary with R. R. Dobson (Dept. 130-3) and A. J. Gillette (Dept. 521-1) as financial secretary aspirants.

Five candidates were named for three-year terms on the Board of Control, including D. K. Slingsby (Dept. 773-0), nominated from the floor. Others are E. H. Boldrick (Dept. 125-0), J. M. Jones (Dept. 842-0), R. M. Smith (Dept. 130-9) and J. H. Stroessler (Dept. 321-4).

Two-year term candidates are C. L. Hartshorn (Dept. 250-0) and T. H. Smith (Dept. 603-0). One-year term candidates are Anne Jaggar (Dept. 170-1), G. N. McMillan (Dept. 521-7), A. R. Mosco (Dept. 102-0) and E. C. Walley (Dept. 152-0).

TOMMIE ZANNES, CONDUCTOR, DIES

Funeral services were held last Friday (April 20) in Cleveland, Ohio, for Tommie Zannes, veteran General Dynamics/Astronautics engineer, test conductor and former base manager at Vandenberg AFB.



Tommie Zannes

He died April 15, after a prolonged illness.

A graduate of the University of Miami and former student at the Graduate School of Aeronautical Engineering, Cornell University, Zannes came to Convair in 1956 after five years of missile test work with Bell.

At Cape Canaveral he was test conductor on six early Atlas missile launches, including the first successful launch.

He is survived by his wife, Estelle, and three children, Tommy, 12, Timothy, 9, and Maria, 6.

NEXT QUESTION—If Virginia Orpin (standing) and Betty Gossett can't answer your question, they know who can. Dept. 120 employees operate GD/Astro's new Information Center, ext. 4636 (Dial INFO).

GD/Astro Info Center Does Rushing Business

"For information, dial INFO."

With this slogan, General Dynamics/Astronautics internal information center, ext. 4636 (INFO), operated by communication (Dept. 120) officially opened for business last week.

Groundwork for the information center was laid to boost efficiency and economy of GD/Astro operations by providing those with a "need to know" with a central clearing point for their questions.

Recently all Astro departments were queried as to specific information available with them. This data has been tabulated for ready reference by INFO employees Betty Gossett and Virginia Orpin.

Manning phones with a special switching system, Betty and Virginia now have more than 1,000 subject area file cards at their finger tips, and the stack is growing daily.

"This is not a telephone directory service," said Vern Heger, internal communication project administrator, who assisted in establishing the operation. "Phone information is available as always from ext. 1421. But should an employee need the facts about, say Atlas engines, INFO will either answer his questions or refer him to an engine expert.

"Naturally, classified or 'private data' will not be transmitted by telephone," Heger added. "We will indicate where the information is available, and if the requester can establish a need and produce proper security clearance, he can get his answer from the information source."

Although INFO began operation without fanfare, operators filled dozens of requests for information during their first week "on the job."

DISABILITY PAYMENT SYSTEM CHANGED

After May 1, weekly disability payments to employees absent for illness or injury will be paid through the California State Disability Office, rather than Aetna Life Insurance Co., as in the past.

Total benefits to the individual will remain the same.

Affected are all General Dynamics personnel based in California. Personnel of California divisions based out-of-state (such as Holloman AFB, N.M., and Astro bases in other states) continue under the old system.

The move is being taken to avoid premium increases, which recent changes in state regulations would have made necessary under the former plan.

Difference to the employee is largely a matter of procedure.

(Continued on Page 2)

Watch Out, Travelers! 'No Show' Penalty Will Be Passed Along!

General Dynamics/Astronautics employees will bear individual responsibility for avoiding a new "no show" penalty for failure to cancel confirmed commercial airline reservations when travel plans change.

F. J. Parker, chief of stores and traffic and 1962 travel monitor at Astro, said the new plan becomes effective May 1 on all major airlines. Basically, it calls for a charge based on ticket cost and ranging from $5 to $40 as a penalty for "no show" passengers.

"When such a charge is imposed on employees traveling on company business, the employee must pay it," Parker said. "This applies whether reservations are made by the individual or the Astro travel center."

The penalty may be avoided by cancelling directly with the airlines or by contacting the Astro travel center, ext. 4355, from 7:45 a.m. to 5:45 p.m.

Those cancelling direct must obtain written proof of cancellation. If cancelled by telephone, the name or identifying number of the person taking the cancellation should be obtained and a written confirmation requested.

Airlines are also subject to penalty, with exceptions, when passengers holding confirmed space cannot be accommodated. Refunds made to the individual must be returned to the Astro cashier.

Log Book Entries

Promotions

MAIN PLANT

Promotions to or within supervision effective April 9.

Dept. 101-7, Data Processing: To group engineer, C. H. Gutzler.

Dept. 125-0, Still Photography: To photo asst. supervisor, H. S. Kierstead.

Dept. 146-1, Reliability Control Engineering: To senior reliability group engineer, D. L. Hill.

Dept. 210-0, Operations Estimating & Forecasting: To factory methods asst. supervisor, M. W. Rickling.

Dept. 305-0, Support Administration: To planning & estimating asst. supervisor, D. N. Van Epps. To support planning and estimating asst. supervisor, G. S. Kaibel. To support planning and estimating supervisor, H. F. Spuehler. To support task control asst. supervisor, R. A. Perkins.

Dept. 322, Support Publications: To support publications supervisor, A. P. Cofano, L. D. Minor. To support publications asst. supervisor, C. R. Sembar.

Dept. 324-5, Field & Service Engineering: To field engineering asst. supervisor, I. L. Tedin.

Dept. 331-1, Support Supply: To GFE asst. supervisor, J. Van Dyk.

Dept. 333-2, Off-Site Logistics: To support logistics supervisor, F. N. Coffee, M. Spindell. To support logistics asst. supervisor, J. R. Gautieri.

Dept. 335-3, Service Parts: To support logistics asst. supervisor, D. R. Hartin. To GFE asst. supervisor, C. L. Hartwell.

Dept. 343-1, Support Manufacturing Control: To GFE asst. supervisor, V. M. Garrison.

Dept. 344-3, Support Operations: To asst. foreman, E. J. Foster.

Dept. 351-0, Field Modification: To chief of industrial relations-base, H. E. Miller.

Dept. 355, Field Modification: To cost control supervisor, H. A. Davis. To chief of product support-base, H. W. Wilson.

Dept. 510-3, Engineering Department Management: To asst. project engineer, A. I. Ames.

Dept. 512-4, Engineering Department Management (PMR): asst. project engineer, J. W. Schaelchlin.

Dept. 521-7, Engineering Administration: To clerical asst. supervisor, F. M. Castrey.

Dept. 539-4, Design Liaison (Lincoln): To activation engineering asst. supervisor-base, T. E. Butterfield Jr., N. W. Lundberg. To asst. design group engineer, P. F. Lewis. To design group engineer, R. H. Adams, K. D. Kleager, J. J. Shotwell, H. L. Smith Jr.

Dept. 539-6, Design Liaison (Dyess): To activation engineering asst. supervisor-base, N. K. Burke Jr., K. D. Russell, J. T. Webb.

Dept. 539-8, Design Liaison (Plattsburgh): To activation engineering asst. supervisor-base, J. W. Esposito, J. E. Wimberly. To design group engineer, H. B. Farrar.

Dept. 782-0, Electronics Manufacturing: To asst. foreman, W. A. Farish.

Dept. 951, Centaur Technical Control: To project engineer, E. B. Newton. To asst. project engineer, J. T. Byrne.

Dept. 958-7, Centaur Reliability Control: To reliability group engineer, D. J. Schroeder.

Dept. 965-4, Centaur Design Engineering: To senior design group engineer, B. B. Shaffer.

AFMTC

Dept. 571, GD/Astronautics Operations: To program project supervisor, A. E. Simon.

DYESS AFB

Dept. 618, GD/Astronautics Operations: To asst. foreman, C. P. Beauregard, R. L. Robinson.

LINCOLN AFB

Dept. 616, GD/Astronautics Operations: To cost control supervisor, W. B. Allen. To offices services asst. supervisor, J. R. Stidd.

PLATTSBURGH

Dept. 620, GD/Astronautics Operations: To inspection asst. supervisor, J. E. Slean, C. E. Thompson. To asst. foreman, J. O. Hysong, A. A. Kovschak, P. J. Niccoli, R. P. Rouse, S. M. Shepard, M. C. Sullens. To launch complex asst. supervisor, P. A. Thompson, L. F. Cescolini, L. E. Willman.

SCHILLING AFB

Dept. 615, GD/Astronautics Operations: To cost control supervisor, W. W. Miller.

VANDENBERG AFB

Dept. 576, GD/Astronautics Operations: To inspection asst. supervisor, A. L. Husted Jr.

WALKER AFB

Dept. 619, GD/Astronautics Operations: To asst. foreman, H. M. Nance, D. E. Skinner. To launch complex supervisor, R. F. Alsup. To launch complex asst. supervisor, S. P. Brower, W. E. Dismukes.

Service Emblems

MAIN PLANT

Service emblems due during the period April 16 through April 30.

Twenty-five-year: Dept. 143-9, O. E. Stewart.

Twenty-year: Dept. 143-7, C. M. Hooper; Dept. 152-0, R. S. Cunningham; Dept. 759-0, A. W. King; Dept. 971-0, Raymond Demitrowicz.

Fifteen-year: Dept. 131-3, H. W. Gillespie; Dept. 223-2, Reba H. Kellison; Dept. 335-2, T. C. Ashby; Dept. 351, Duane Ashcraft, J. D. Burrows; Dept. 451-0, Harold Harvey; Dept. 460-0, R. T. Morris; Dept. 814-0, B. W. Gruber.

Ten-year: Dept. 101-6, R. L. Kriz; Dept. 152-0, O. M. Merrill; Dept. 154-1, R. A. McClernan; Dept. 223-3, D. W. Russell; Dept. 343-1, N. L. Taylor; Dept. 410-0, G. W. Stebbins; Dept. 537-7, L. W. Buser; Dept. 581-1, C. M. Kerby; Dept. 591-0, Vera R. Waychoff; Dept. 597-1, Viviette V. Larsen; Dept. 773-0, D. R. Conk; Dept. 781-0, Josephine P. Holley; Dept. 812-3, G. W. Cowan; Dept. 968-1, F. H. Branscom.

ALTUS AFB

Twenty-year: Dept. 617-0, W. C. Gish.

Fifteen-year: Dept. 617-4, Ralph Steele.

Ten-year: Dept. 617-8, W. A. Martin Jr.

DYESS AFB

Ten-year: Dept. 618, E. L. R. Crawford, H. M. Pina.

LINCOLN AFB

Fifteen-year: Dept. 616-2, H. C. Van Buren Jr.

PLATTSBURGH AFB

Ten-year: Dept. 620, J. N. Mattson, S. A. Reeve.

SCHILLING AFB

Ten-year: Dept. 615-2, H. L. Dodd.

SYCAMORE

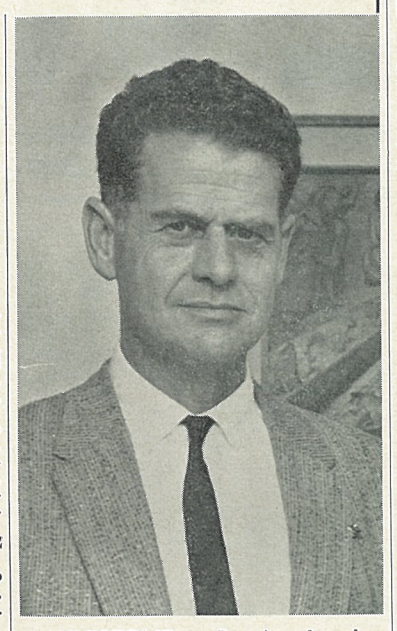
Twenty-year: Dept. 573-3, H. P. Lipp.

VANDENBERG AFB

Fifteen-year: Dept. 576, D. R. Hill, Alexander Thompson.

WALKER AFB

Fifteen-year: Dept. 619, Melvin Burright, C. E. Davis.



MILESTONE — R. A. Jacobs, Dept. 344-3, receives 25-year service pin from Mort Rosenbaum, GD/Astro executive vice president.

Personals

MAIN PLANT

Sincere thanks to my Convair and Astronautics friends for their cards, flowers, and many kindnesses during my recent illness.

Jean Garrett,
GD/Astro Dept. 601-0.

Births

MAIN PLANT

WEBB—Son, Dean Michael, 5 lbs., 8 oz., born April 11 to Mr. and Mrs. R. J. Webb, Dept. 531-3.

WALKER AFB

BARKLEY — Daughter, Yvonne Victoria, 7 lbs., 12 oz., born March 29 to Mr. and Mrs. G. R. Barkley, Dept. 619-1.

Deaths

AFMTC

HERVEY—Charles D., Dept. 571-1. Died April 5. Survived by wife, Marion, son and daughter.

ALTUS AFB

BREWSTER—Lyman H., Dept. 617. Died April 5. Survived by wife, Christel; daughter, Susan.

VANDENBERG AFB

ZANNES—Tommie, Dept. 576-0. Died April 15. Survived by wife, Estelle, two sons and daughter.

Disability Payment System Changed

(Continued from Page 1)

Group insurance claims must be made out as formerly, verified by a medical doctor, and returned. Now, in addition, State Disability forms must also be made out, verified medically and submitted to the local State Disability Office.

State forms may be obtained from employee services (or the local State Disability Office). Forms will be mailed to the home upon telephone request to employee services.

General Dynamics NEWS

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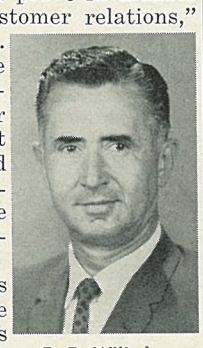
'Gene' Wilhelm Hansen Asst.

F. E. "Gene" Wilhelm, veteran aircraft and missile executive, has been named assistant to Grant L. Hansen, vice president and program director—Centaur, at General Dynamics/Astronautics.

"Wilhelm's experience and background will prove invaluable in bettering customer relations," Hansen said. "In addition, he will be the contact within our Centaur Project for advanced systems planning and the field office organization."



F. E. Wilhelm

Wilhelm has served since Sept., 1961, as chief of market research in Astro's advanced product planning department. Previous assignments at Astro included work in engineering, quality control, material control, systems and procedures and long range planning dating from 1957 when he joined the company.

Before joining Astro, Wilhelm worked for such firms as Thompson Ramo Wooldridge, Northrop, North American and Douglas.

A native of Washington, D. C., Wilhelm attended secondary schools in Williamsport, Pa., Pennsylvania State Teachers College and Dickinson Seminary, and graduated from San Diego State College with a BA in life sciences.

Duerksen Appointed Associate Counsel

William Duerksen last month was named associate counsel at General Dynamics/Astronautics by J. R. Dempsey, president. He reports to H. Cushman Dow, chief counsel.

Wm. Duerksen

Duerksen joined GD/Convair in 1959, and since 1960 has served as Corporate senior staff attorney.

He is a native of Bakersfield, Calif., and a graduate of the School of Law, Stanford University.

$35,263 Emergency Help Disbursed

(Continued from Page 1)

Emergency Aid counselors often can help employees get benefits from charitable health and welfare agencies supported by other Con-Trib-Club donations.

For instance, a daughter, 8, of an employee in the San Diego area required surgery for removal of a kidney, as well as treatment of a severe hearing loss. Emergency Aid helped defray medical costs above group insurance coverage at Children's Hospital. Then working closely with H.E.A.R. Foundation and the Rest Haven Preventorium for Children, arrangements were made for treatment and acquisition of two hearing aids.

Information concerning Emergency Aid is available through employee services at the main plant and off-site locations.

Auxiliary to Tour Astro Home Plant

Members of Astro Wives' Auxiliary will tour Astronautics Kearny Mesa plant at 11:30 a.m. May 16.

Following the tour, luncheon will be served in the ARA Clubhouse at 1:30 p.m.

Reservations may be made with Mrs. David Schmidt, BR-3-3890, until May 14. However, since tour capacity is limited, members have been asked to call as early as possible. Guests will be welcome.

IN SESSION—Key Centaur reliability control men gathered at GD/Astro last week. Astro's W. R. Monroe addresses group. Seated at right and left foreground are Astro's John Trader and W. B. Otto. NASA men at table include C. E. Meadows, J. T. Koppenhaver, W. H. Lucero, F. C. Hammers, B. A. Rosson, E. C. Hoffer, W. J. Duncan, A. H. Capowski, E. E. Seiler and W. E. Jordan. Seated in back are Ken Hart and A. J. Treantos of Astro and R. L. Hill, NASA, while R. L. McFolin is seated at right.

Key Men in Centaur Reliability Hold Two-Day Parley at Astro

Key men responsible for reliabilty control on Centaur gathered at General Dynamics/Astronautics last week for a two-day round of conferences.

The April 17-18 session drew 21 representatives, including Astro participants headed by W. R. Monroe, manager of reliability control—Centaur, who was host.

B. A. Rosson of the National Aeronautics and Space Administration's light and medium vehicles office, George C. Marshall Space Flight Center, led the visitors. In addition to the Marshall Center participants, including some from the Western operations office, others taking part came from NASA Headquarters, Washington, D.C. Also attending were men from the Astro Air Force Plant Representative and NASA representative office.

This technical reliability control working group convenes periodically to establish Centaur program reliability control plans and procedures, to investigate problem areas and help expedite corrections, if needed. In short, it deals with any factor or problem concerning reliability of the Centaur or its support elements.

Marshall Center participants, in addition to Rosson, were Earl C. Hoffer, Bill J. Duncan, A. H. Capowski, E. E. Seiler, F. C. Hammers, R. L. McFolin, W. E. Jordan, W. H. Lucero and C. E. Meadows.

J. T. Koppenhaver and J. E. Condon represented NASA Headquarters. Local representatives of NASA and AFPR offices were R. L. Hill and J. Z. Mraz, respectively.

Astro participants included J. E. Trader, W. B. Otto, G. L. McMahon, J. Wickham, E. I. Roberts and A. J. Treantos.

Altus Volunteers Help Blood Bank

ALTUS AFB—Over 60 pints of blood were donated to the Jackson County Blood Bank by GD/Astro and other contractor employees here during a recent visit of the Red Cross bloodmobile.

Playing major roles during the visit were members of GD/Astro Wives Club who served both as volunteer workers and as donors.

For Robert Heaton, GD/Astro safety technician, the bloodmobile visit was a special milestone. He donated his 17th pint of blood, receiving in turn an American Red Cross "two gallon" pin.

Son Is Outstanding Student at Dyess

DYESS AFB — Eddie White, son of Astro's E. B. White, has been named the outstanding distributive education student at Cooper High School here in Abilene.

The program teaches marketing and distribution. Eddie was president of his school's distributive education club and worked for J. C. Penney Co. as part of the program.

INDUST. EDUCATION SYMPOSIUM HELD FOR AF VISITORS

General Dynamics/Astronautics was first stop this month for a party of officers visiting West Coast companies in connection with the Air Force Education with Industry Program.

At GD/Astro, 67 Air Force officers and eight civilian representatives of other participating companies attended a management symposium at which J. A. Croft, chief of educational services, was host. Lt. Col. Thomas E. Bruey, AFPRO executive officer, made the opening address.

Senior visitors were Col. Kermit D. Stevens, Air Force Technical Institute deputy commandant, and Col. Miles R. Palmer, AFTI director of civilian instruction programs.

The Education with Industry program involves assignment of selected Air Force officers to industries where they are familiarized with mangement, engineering and production techniques.

During the symposium, top GD/Astro officials provided visitors with information on management techniques in all phases of the missile and space vehicle industry.

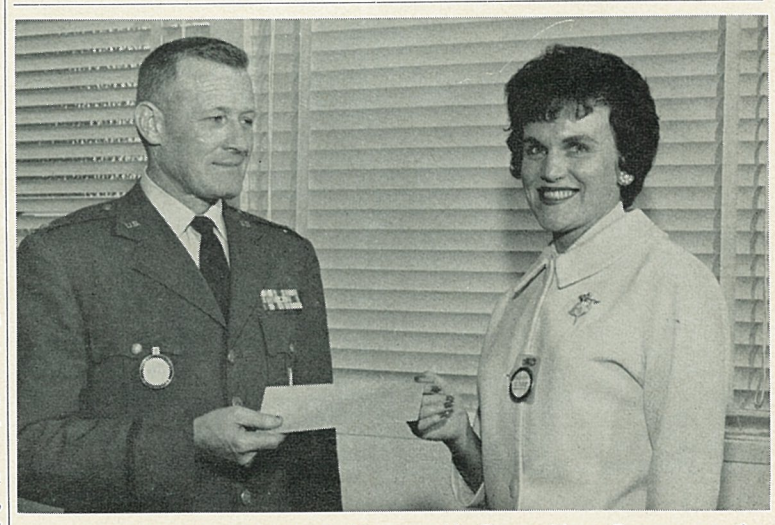
Monthly Schedule For Salvage Set

Salvage yard schedule at GD/Convair and GD/Astronautics for the next four weeks is:

GD/Convair—April 28, May 12.

GD/Astro—May 5, 19.

Both yards are open to General Dynamics employees from 8 a.m. until noon on the alternating Saturday sales' dates.



AND THANKS—Col. H. E. Moose, Air Force Plant Representative at GD/Astro, presents check for $200 to Mary Potapoff, budget officer and chief, plans and analysis branch, recognizing outstanding service and Sustained Superior Performance Rating awarded her.

Jet 990 Sets Rugged Record

What may be a record in use of a Convair jet transport in a single day was recorded by a Swissair 990 Coronado during pilot training last week.

The first SAS-marked jetliner flew 16 hours, 38 minutes, during a 24-hour period from Arlanda, Sweden, training base on April 16. It made 19 landings, averaging one every 53 minutes, reported Frank Laffoon, GD/Convair field service rep with Swissair.

If all the miles flown by the 990 during that day were laid "end to end," say transport service mathematicians, the craft covered 10,600 miles at an average 550 knots cruising speed—or two round trips cross-country from Los Angeles to New York and a leg to El Paso, to boot.

Institute Planning Panel Discussion

A panel discussion on "Philosophy and Techniques of Documentation" will be presented at 1:30 p.m., April 28, at the Flame Restaurant by the San Diego Chapter, American Documentation Institute.

The discussion will continue until 5 p.m., featuring panelists J. W. Perry, University of Arizona; John Mitchell, Sperry-Rand Corp.; and Ross Williams, GD/Convair.

Following a social hour (5-6 p.m.), and dinner at 6 p.m., Dr. Robert Hayes, ADS president-elect, will speak on "How Computers Digest the Thought Process."

Additional information is available from K. G. Blair, GD/Astro ext. 4464.

New SAVE Chapter To Elect Officers

Charter members of the newly-formed San Diego chapter of SAVE (Society of American Value Engineers) will elect officers at their May 8 organization meeting.

H. P. Williams, General Dynamics/Convair value control manager, will chairman the 6:30 p.m. dinner meeting in the Convair executive dining room, Pacific Hwy.

General Dynamics divisions in San Diego will be among the companies represented by at least 45 members. Regular schedule of meeting dates, committee appointments will be on the business agenda.

Langlois Is Speaker At Tooling Seminar

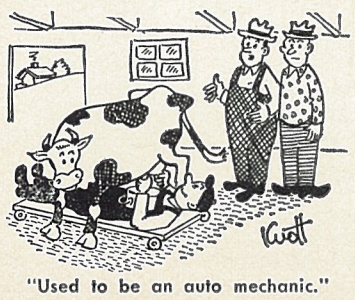
A. P. Langlois of General Dynamics/Convair was on the program both days of the April 11-12 High Energy Rate Forming Seminar sponsored by American Society of Tool and Manufacturing Engineers at Denver, Colo.

Langlois, supervisor in applied manufacturing research, spoke on "Case Studies of Electro-Magnetic Forming" at the Wednesday morning session. The next afternoon his topic was "Dynapak Compaction of Ferrites."

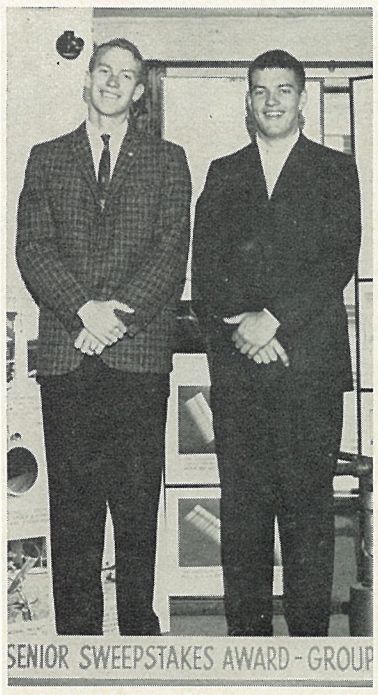
B-58 Engine Changed In Record Time

A crew of the 43rd Bomb Wing changed a B-58 Hustler engine in the record time of 2 hours, 21 minutes, in March, chopping 54 minutes off the previous record time.

Crew members were S/Sgts. Edwin A. Bruner, Edward L. Euglow, and Duane T. Boynton, and A/1c Ronald G. Carns and David L. Lake.



"Used to be an auto mechanic."



SAVVY SENIORS—James McCabe, left, son of GD/Astro's C. F. McCabe, Dept. 544, and partner Thomas Tracy, won Senior Group Sweepstakes at recent Greater San Diego Science Fair. Both boys are seniors at Pt. Loma High School and prepared elaborate study exhibit on "Astronomical Spectroscopy."

TRI-HOSPITAL FUND AIDE APPOINTED FOR 1962 DRIVE

Joe Frivaldsky, labor relations representative at GD/Astro, has been named to help guide the 1962 employee-group solicitations for Tri-Hospital Building Fund in San Diego.

Goal of the Fund is to raise $10.5 million for expansion and modernization of patient care facilities at Sharp, Scripps and Mercy Hospitals. Some $5,425,079 in subscriptions, on which cash amounting to $4,050,492 has been paid, have been received to date.

General Dynamics employees in the San Diego area have contributed generously to the drive to date through payroll deductions.

Technical Society Forms at San Diego

A local section of the Society for Nondestructive Testing, Inc., has been formed in the San Diego area, and is open to all persons interested in materials examination using nondestructive methods.

The technical society will meet on the second Monday of each month.

GD/Astronautics employees interested in the group have been asked to contact J. D. Scherkenback or D. E. Billinghurst, ext. 1767, for additional information.

Research Engineers Attend Congress

Two General Dynamics/Convair research engineers presented papers at the 43rd National Welding Congress in Cleveland, Ohio, April 9-13.

R. D. Beemer's paper was "Welding Comparison of Gas Shielded Arc Processes." L. J. Mattek spoke on "Welding Nickel-Base Alloys."

Both are senior manufacturing development engineers in Dept. 23-1, applied manufacturing research and development section of resources engineering.

Cottontail Finds GD/Convair Home

Wildlife news at GD/Convair is keeping abreast of spring.

As buds burst all over, John Weber, gardener, keeps a honey-coated stick handy for in-between lunches of a mother hummingbird rearing two babies in the Bldg. 1 patio.

A young cottontail also has found refuge where there's loving care — and food! Weber daily supplies carrots and lettuce to the bunny, hiding out in the tool shed.

Delta to Inaugurate Caribbean Service First of Next Month

Delta Air Lines' Convair 880s will inaugurate Delta's new all-jet service to the Caribbean next week (May 2).

Convair jetliners will make two round trips a week between Los Angeles, Montego Bay in Jamaica, and Caracas, Venezuela. First through-plane jet service also will start the first of May between Los Angeles and San Juan, Puerto Rico, with one intermediate stop at New Orleans.

Delta is rescheduling 880 flights out of San Diego as of this Sunday (April 29).

A Convair 880 will leave Lindbergh Field daily at 8 a.m. for Los Angeles; Dallas, Texas; and Orlando, Fla.

Another Convair 880 will arrive at San Diego each day at 8:33 p.m. over the same route from Orlando.

SKIPPER PRAISES TARTAR SYSTEM

High praise for the Tartar missile system was contained in recent correspondence prepared by Cdr. D. V. Cox, USN, commanding officer of the USS Robison (DDG-12).

The correspondence, addressed to the Chief, Bureau of Naval Weapons, and Chief, Bureau of Ships, via Commander Destroyer Force, U. S. Atlantic Fleet, said in part:

"This commanding officer firmly believes that we should have great pride in this advanced system and that the men working on it should have their confidence engendered by such pride. The Tartar system offers a capability which was only a dream less than two years ago."

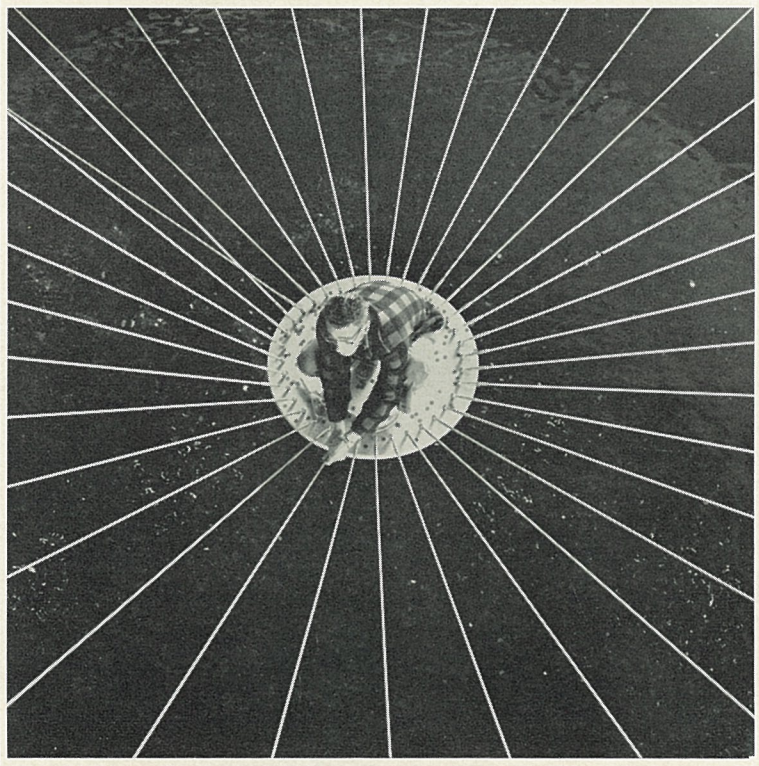
The Tartar missile is manufactured for the Bureau of Naval Weapons by General Dynamics/Pomona.

GD/FW Son Selected For Denmark Trip

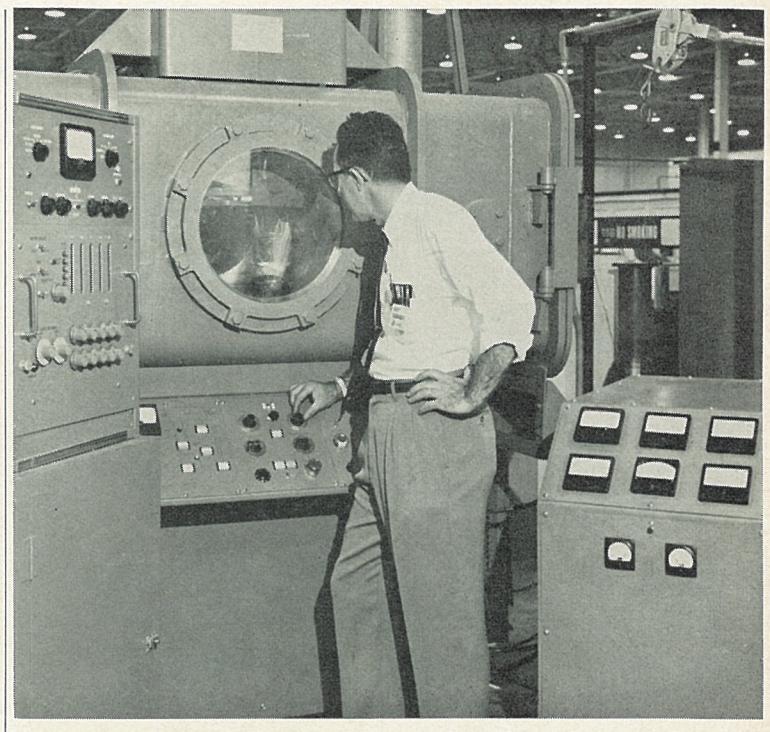
Dean Dupre, son of R. M. Dupre, GD/FW Dept. 22-5, has been awarded an American Field International Scholarship as a finalist in the "Americans Abroad" part of the student exchange program.

The 16-year old Halton High junior will live with a family in Denmark this summer as an exchange student. He sails from Montreal on the Dutch liner "Seven Seas" June 15.

Dupre, an honor student, will absorb the culture and customs of the people of Denmark while showing them the customs and ideals of American youth.



SPIDER WEB—Construction mechanic John Riehl, Astronautics Dept. 250-3, is "man in the middle" as he adjusts rods suspending GD/Astro's spiral staircase over reflection pool in Bldg. 2 reception center. Photographer Tom Mahnken spotted "spider web" pattern and made photo. Staircase is often used as spectacular setting for such events as fashion shows, etc.



SUPER-WELDER—W. J. Kairot watches through inspection window in vacuum chamber as GD/Astro's new electron beam welder is tested. Cabinet at left is numerical controller on which welding task is programmed, then carried out automatically inside vacuum chamber. Electron beam operates on same principle as TV picture tube; must work in vacuum.

Device Explores Exotic New Welding Methods

A device for exploring the most exotic of modern welding techniques has been acquired by General Dynamics/Astronautics for use in applied manufacturing research and process development (Dept. 290-2).

The unit—an electron beam welder—is the largest of its kind in the San Diego area. It will be used for acquiring data on electron beam welding of refractory metals (tungsten, tantalum, molybdenum, etc.) readily oxidized metals (beryllium, titanium, etc.) and certain vacuum-melted alloys.

GD/Astro's unit, built by Alloyd Electronics Corp., will handle materials ranging from foil-gauge to one-inch thickness.

The electron beam welding method operates on the same principle as a television picture tube. The picture in the TV set is "painted" by a moving beam of electrons emitted when a metal filament is heated to high temperature.

The electron beam welder also contains an "emitter" — a filament heated to a temperature of 3,632° F. Acceleration and beam density is supplied by a 30,000-volt, 250-milliamp current. Unlike the "sweeping" beam in a TV tube, the electron beam remains stationary. Materials to be welded are placed at the point of concentration, where energy of the electron stream is converted to intense localized heat on contact with the metal.

Also similar to the TV principle, the electron beam must operate in a vacuum (in open air, electrons collide with air molecules and dissipate their energy, and air causes filament destruction through oxidation).

Thus the welder is equipped with a work chamber six feet long, two feet wide, and 30 inches high, in which a vacuum equal to an altitude of 250,000-feet is maintained.

Parts to be welded are set up on a work table inside the chamber. When the chamber is sealed and the vacuum induced, electric motors drive the table under the beam at speeds of 0-100 inches per minute in the X-axis. The work is directed automatically from start to finish by commands pre-set on a numerical controller

A manufacturing research team of W. J. Kairot, welding engineer, and Marlin Robinson, metallurgist, will explore the variety of advantages afforded by electron beam techniques.

First, because the welding operation is conducted in a vacuum, there will be no contamination of parts by absorbed gases.

Because of sharp concentration of the electron beam, smaller areas of parts being welded are affected by heat; and weakening through shrinkage is reduced because less metal becomes molten during the welding process.

A valuable by-product with vacuum-melted materials is that many of them benefit in terms of strength by the de-gassing which takes place when they are heated in a vacuum.

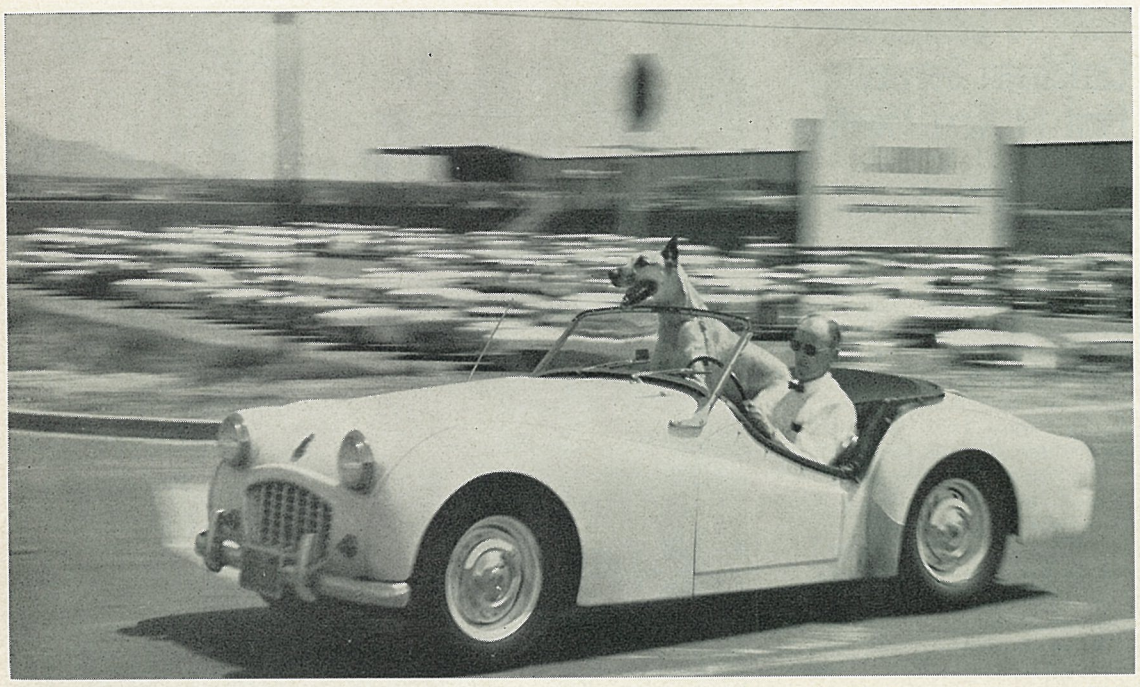
With this process, butt joints will not require traditional "V", "J" or "U" setups, but need only tight contact between parts to be welded for satisfactory results. Lap joints can be made simply by running the electron beam across the area where materials overlap, rather than welding and filleting the seam along the edge of each lap individually.

T-joints can be similarly handled.

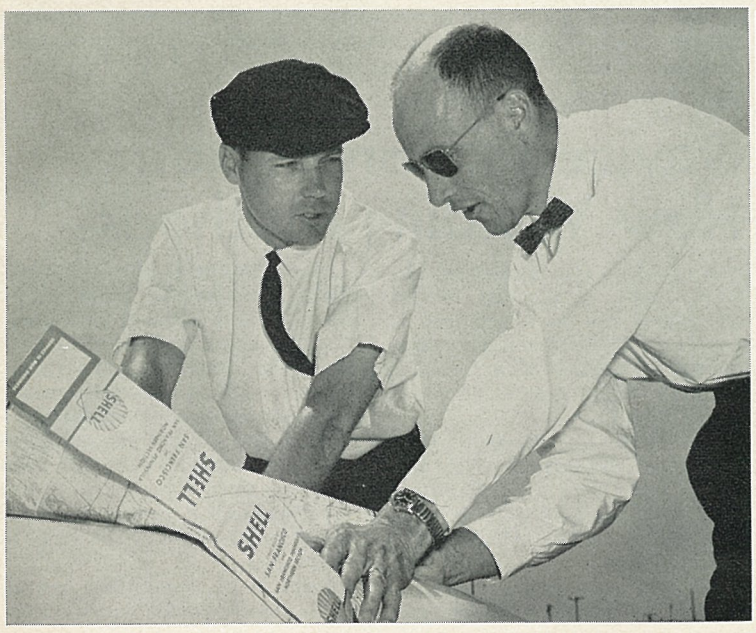
Electron beam welding may also prove useful for repair of weldments or brazements where a part could not survive the high temperature reprocessing cycle required by conventional repair methods.

Another eye-catching use for the new device is seen in welding "parts within parts."

"Imagine we wished to join units of 'E'-shaped cross-section together at the 'arms' of the 'Es'," said Kairot. "We'd simply place the arms in contact with each other, then selectively focus the electron beam to weld the top, center, or bottom arms individually—or all at the same time!"



NAVIGATOR—ARA Sports Car Club can't complain if their Atlas Rally IV "queen" is termed "a real dog." It is. Jack Stevens' great dane, Mike, shown here serving as Rallymaster George Lahey's "navigator," was selected as rally symbol this year.



'WAY OUT?—Astronautics Commissioner Marion Carter and Rallymaster George Lahey study map preparatory to Atlas Rally IV to be conducted by ARA Sports Car Club April 29 at San Diego. Officials are vague about Rally's route, but isn't that San Francisco map they're pondering?

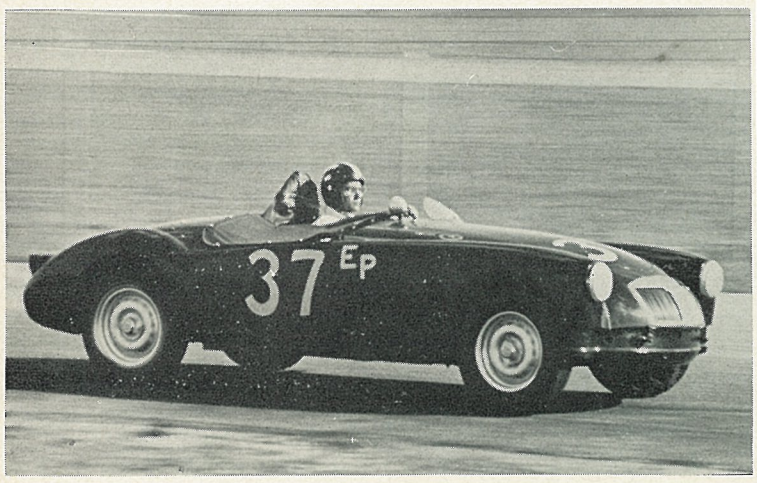
Field Service Duo at Cape Canaveral Unbeaten in Two Seasons of Racing

CAPE CANAVERAL — Two GD/Astro field service engineers (Dept. 324-8) assigned here have scored top honors in recent Florida sports car events.

Car "37," a twin-cam MGA roadster owned by John P. Hill Jr., and driven by Herb Byrne, has not only gone unbeaten in two seasons of class "E" racing, but has usually finished ahead of most class "C" and "D" production cars.

The car also holds the class "E" production record for the 2.5-mile lap with a speed of over 121 mph!

This season Hill will do most of the driving himself, as Byrne concentrates on duties as assistant regional executive for Sports Car Club of America (Central Florida). Recently he has been race chairman for several major events, including the three-hour Daytona Continental.



UNBEATEN—Astro's Herb Byrne (Cape Canaveral) drives car "37" owned by John Hill in National Sports Car Club of America race at Daytona (Fla.) International Speedway. Car has record of two undefeated seasons.

Engineers at General Dynamics Eligible For University Extension Courses

An engineering review course of special interest to General Dynamics people in the San Diego area starts this week under auspices of University of California Extension.

The review for persons preparing for engineering examinations offered by California Board of Registration for Civil and Professional Engineers began April 24 at Roosevelt Junior High School.

A second section begins tomorrow (April 26), also at Roosevelt.

Prerequisite is a degree in engineering or four years of practical experience, or an equivalent combination of college and experience.

Information is available at University Extension office in S.D.

Sports Drivers Heading Cars Toward Astro

Southern California sports car rally fans—experts and beginners alike—will converge on General Dynamics/Astronautics at San Diego Sunday, April 29, for the fourth annual running of ARA Sports Car Club's Atlas Rally.

First car will roll off at 7:01 a.m. on a scenic route designed to accommodate beginning competitors, yet challenge the most experienced driver.

Dash plaques will go to all cars entered in the event, and trophies will be presented to the top 10 drivers and navigators in both navigational and "seat of the pants" classes. Many other trophies and door prizes are planned.

Rest stops totaling two hours are incorporated in the rally timetable, with the event concluding at Marty's Valley Inn near Oceanside.

As in previous Atlas Rallies, most ARA Sports Car Club members will be busy with administration. George Lahey is rallymaster, Jack Stevens in charge of course layout and checkpoints, Marion Carter, ARA commissioner, publicity, Marge Lahey, awards, Jim McRae, scoring, Dave Stephens, applications, Jim Cochran, following cars, and Derek Beck, photography.

"Beginners and non-sports car owners are especially welcome," said Carter.

Additional information is available from him at Astro, ext. 2092, or BR-4-1705; or Lahey, ext. 3206 or BR-7-6384.

British, Japanese Briefed on Missiles

Military personnel and civilians from opposite sides of the world visited General Dynamics/Pomona this month.

Seven representatives from Japan were at the Pomona Division April 12 and 13 for briefings on the Tartar missile system. They included Cdr. Naotoshi Ohkubo, Lcdr. Kazumi Ishihara, Lt. Masayuri Akiyama, Hayao Hashimoto, Akinari Hamuro, Yasuo Tomohira and Rigeru Seguawa.

Col. Francis Peathey-Johns and Lt. Col. W. D. Blackman of the British Army Staff visited Pomona April 13 to discuss the Mauler weapon system.

Tartar is a supersonic surface-to-air guided missile developed and produced at GD/Pomona for the U. S. Navy. Mauler is a mobile missile system under development at Pomona for the U. S. Army.

EMMERICH SPEAKS ON MERCURY FLIGHT

Lew Emmerich, GD/Astro project manager, electronics project office, was principal speaker at an April 19 meeting of the Central California section, American Rocket Society. He led a group discussion on "Unique Aspects of the Mercury Flight."

Engineers Training in Factory To Get Newest Mfg. Technique

Design and structures engineers in air frame design section at GD/Fort Worth are invading classroom and shop areas to learn about latest manufacturing techniques.

About 60 engineers are currently enrolled in an in-plant 21-hour production engineering course, consisting of classroom lectures by specialists and frequent tours of shop areas.

"We're learning about new developments in fabrication techniques, shop equipment and inspection procedures that have taken place since the last major product design at GD/Fort Worth," said F. A. Lindstrom, structures design specialist, who deserves much of the credit for starting the course.

"Much has happened since we advanced the state of the art in many production areas with the B-58.

"This is especially true in the cost area. The idea now is to design the best possible product for the cheapest possible price. This is difficult to do without an awareness of the very latest manufacturing techniques."

Numerical machining, high-energy rate forming, chemical milling, electroforming and mechanized welding are only a few of the techniques under investigation.

One class of about 30 students attends an hour session each Tuesday morning, while another 30-member class attends a Thursday morning meeting.

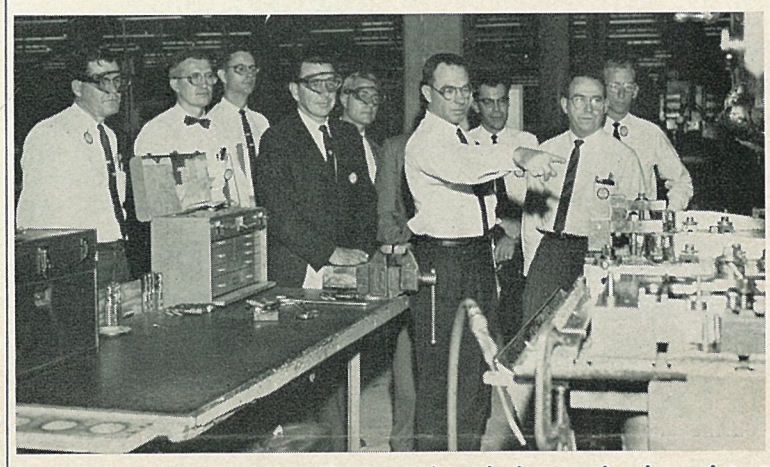
Some of the broad subject areas—all considered with an eye to limitations and costs—are: factory modernization, dimensioning, forming, chemical processes, plastics and glass laminates, bonding and brazing, metal removal, portable tools, new processes, numerical control lofting and forging.

Lindstrom said the program met with "enthusiastic response" from engineering, manufacturing research and development, and educational services section.

W. R. Ellis, Dept. 23, and Doug Anderson, Dept. 3, coordinators, assisted in setting up curriculum and scheduling instructors.

An introduction to the course was presented by Dick May, chief of applied manufacturing research and development.

"Ellis is handling the unprecedented and continuous coordination job with amazing smoothness," Lindstrom said.



IN "CLASS"—Engineers from product design section learn latest manufacturing capabilities in special class at GD/FW. H. R. Cook explains intricacies of vertical milling machine.

Bldg. 51 Third Floor at San Diego Rearranged For Astro Sections

Over 1,000 General Dynamics/Astronautics engineers and support functions will be consolidated in Bldg. 51 at GD/Convair Plant 1 soon after the first of the month.

Third floor of Bldg. 51 has been rearranged to accommodate majority of Astro contingent at the Plant 1 facility.

Moving from other areas within GD/Convair will be approximately 450 engineers supporting laboratory functions—electronics, physics, hypersonic, computer. Laboratory technicians will remain physically located within the various lab areas.

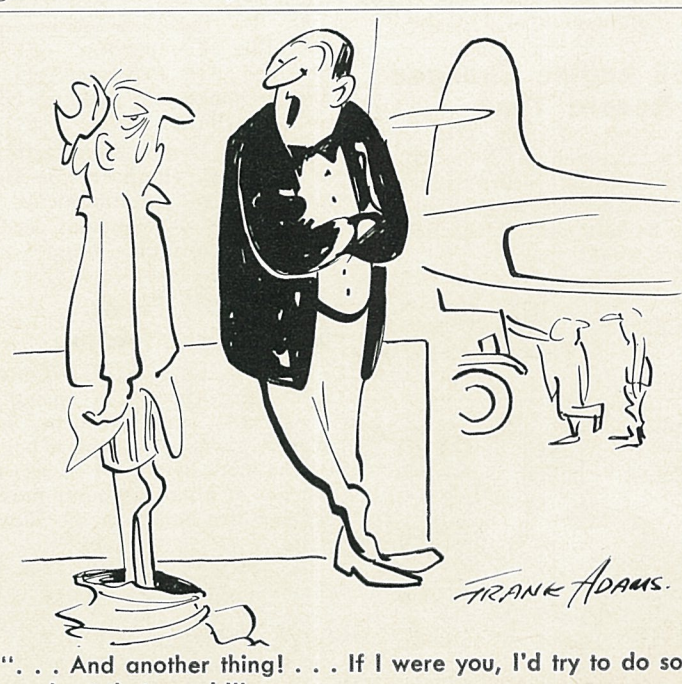
Engineers in materials research will remain on the second floor of Bldg. 5 for close communication with the laboratories on the floor below. Systems dynamics engineers also will stay in their present location in Bldg. 6, near their lab and test facilities.

Major shift will see 575 product support people in Depts. 321 and 322, under Roy Lessard, manager, moving from Astro main plant to Bldg. 51.

Most of the group have been in Bldg. 26 at the Kearny Mesa site. About 80 are moving from Plant 2.

Engineers in the handling equipment design sub-section (Dept. 536), numbering about 150, will be only rearranged within the area, since they have been situated in Bldg. 51 for several months.

Also located in the San Diego proper area are 140 Astro data systems (Dept. 170) people, under Ward Soule, in Bldg. 19. As far as is known at present, they will not be relocated.



". . . And another thing! . . . If I were you, I'd try to do something about that cough!"

"PRESTO" MIXERS — Programmers at GD/Convair watching Chique Stieringer apply new-developed PRESTO system in updating PERT network to chart C-141 time schedules are (from left) Roy W. Dill, Phil Shepard, W. B. Moyer, Don Ehrreich.

PRESTO Added to PERT As New Refinement of Pinpointing C-141 Effort

Program planners at General Dynamics/Convair are finding that their own refinement of PERT (Program Evaluation Review Technique) is paying off in recording progress of the C-141 program.

The new development, instigated by Willard Dewey, program control manager, breaks down the overall PERT system into finer increments of time to measure each step along the network. And fittingly, the alphabet jumble comes out PRESTO—Project Release Status Operation.

PERT has been in effect at GD/Convair, first during updating of the Convair 990 program, and then on the C-141 subcontract project from time of contract award last fall.

The management tool for evaluating and reviewing progress of a program, specifically during development stages, has been applied by GD/Astronautics, GD/Pomona, GD/Fort Worth over the last couple of years (**General Dynamics NEWS**, March 28, 1962).

"PRESTO is a supplement to PERT," explained W. B. Moyer, program control administrator.

"Now, each small step or 'footstone' between the wider time spans on the PERT network (integrated plan showing events in logical sequence) can be monitored and tighter control maintained.

"Actual progress in comparison with advance schedules can be seen instantly at any given time. Critical areas can be pinpointed and corrective steps taken immediately."

PRESTO is put into motion by task control records establishing schedules for each releasable part of a given task. From these records data processing turns out IBM cards for each event, or step necessary in the long chain between design and production. A report summarizing status of all events is compiled at the same time by the 7090 computer.

Events cards go to PRESTO coordinators for report of actual or estimated date of completion for each operation within their departments.

"Print-outs" of PRESTO reports showing actuals and estimates go to program control for analysis and means of reporting progress with PERT. Three runs are maintained. One is a complete record of all events taking place on C-141 empennage work. The second gives information on events completed on the first production item, and the third, on events leading up to delivery of the static test article.

The evaluation system will be maintained throughout production of the first two C-141 items only.

As the reports are constantly up-dated, they go to Lockheed Georgia, prime contractor, every two weeks to be integrated into PERT information from all other C-141 subcontractors. In turn, the entire progress of the program is sent to the Air Force.

At GD/Convair, heart of task control operations is in the C-141 Planning and Scheduling Control room on second floor of Bldg. 5. There Don Ehrreich, master scheduler, and Chique Stieringer, statistical technician, constantly keep PERT and PRESTO charts and graphs current from information fed by coordinators.

Each function involved in C-141 work is represented by the following coordinators: Harry Millar, engineering; Dan Macey, material; Ralph Cutler, tooling; Don Dvorak, manufacturing control; and Paul Pearson, factory.

Class on PERT Oversubscribed

First formal PERT familiarization at General Dynamics/Convair briefed 164 supervisory people over a six-day period early this month.

Originally set up for functions connected with the C-141 subcontract program, demand from other departments at both Plant 1 and 2 was so great, said H. W. Rubottom, chief of educational services, that classes had to be expanded.

Even 19 from Solar asked to be included.

A second series of PERT training classes was held last week (April 17, 18, 19) for General Dynamics/Electronics.

One other class was held last Thursday for second-shift people at Plant 2.

All classes were coordinated by Will Weidenfeller of educational services. They explained the history of PERT, how it works, what it offers management.

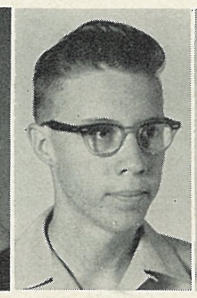
A PERT film, "Breakthrough," showed how the system was used successfully throughout the Polaris missile program, for which it was developed by the Navy Project Office.

Outstanding Students Earn 11 Dynamics Scholarships

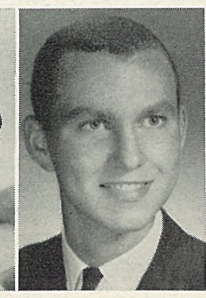
Eleven General Dynamics sons and daughters from six of the corporation's divisions have been awarded General Dynamics Corporation Merit Scholarships for 1962.

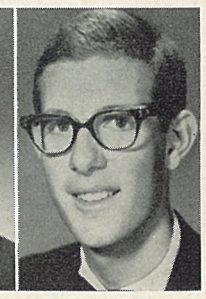
GD/Convair, GD/Pomona, GD/Astronautics, and GD/Fort Worth each had two winners; one was from GD/Electronics at San Diego; and two from Electric Boat Division, Groton, Conn.

Therese Adams

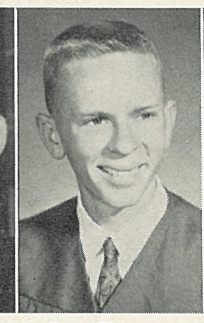

Edward Fore

Dorothy Dismukes

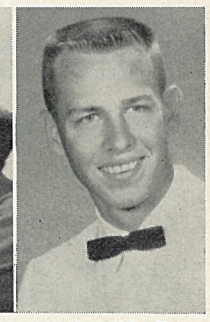

Stuart Galley


Don Lapidus

Stephen Pazan


Gary Chapman

Beth Ann Burdick


Robert Edgell

Winners announced this week are:

GD/Astronautics — Stuart W. Galley, son of Robert L. Galley (Dept. 557-3); and Don S. Lapidus, son of Leo Lapidus (Dept. 101-5).

GD/Convair —Gary C. Chapman, son of Charles W. Chapman (Dept. 6-200); and Stephen E. Pazan, son of Edward C. Pazan (Dept. 48-11).

GD/Electronics — Therese R. Adams, daughter of Stanley O. Adams (Dept. 6-5107).

GD/Fort Worth — Dorothy L. Dismukes, daughter of Jack H. Dismukes (Dept. 24-5); and Edward M. Fore Jr., son of E. M. Fore (Dept. 25-3).

GD/Pomona — Beth Ann Burdick, daughter of Mrs. Florence W. Burdick (Dept. 6); and Robert A. Edgell, son of Alan D. Edgell (Dept. 6).

GD/Electric Boat — William R. Hammock Jr., son of William Rex Hammock; and Linda Jean Sammataro, daughter of Francis Sammataro.

All of the young people are top students in their senior classes and stood at the top of the list in National Merit Scholarship qualifying tests. Awards range from $1,000 to $6,000 over four years of college.

Stuart Galley is graduating from Grossmont High School where he has been active in student affairs. He was member of the varsity track and cross-country teams; life member of California Scholarship Federation; a member of the Student Council.

He will major in mathematics at California Institute of Technology.

Don Lapidus is a senior at Point Loma High School where he is a life member of CSF and president of the school chapter this year. He was chosen outstanding student of his junior class. He holds letters for two years on the varsity tennis team. This year he was president of Skeptics, school discussion club.

He will enter Harvard University for a major in foreign languages, planning a teaching career.

Gary Chapman is also graduating from Point Loma High this spring. He has been active in the American Youth Hostel and San Diego Yacht Club. In school he is a member of CSF, chairman of the safety committee, and member of Student Opinion group.

Gary will major in political science at Pomona College heading toward a career with the State Department.

Stephen Pazan, a student at Kearny High School, was also runner-up in the GD/Convair Management Club scholarship contest this year. As all the rest of the top scholars, he is a life member of CSF. He was cadet major in the ROTC this year; member of the Math Club; member of Quill & Scroll.

He will enter California Institute of Technology this fall and plans to specialize in physics.

Therese Adams, only GD/Electronics winner, is another Point Loma High student. She is a life member of California Scholarship Federation. She received a scholarship for her freshman year at Cathedral Girls' High School and a scholarship for painting instruction at California Western University.

She intends to major in elementary education at SD State.

Dorothy Dismukes is graduating from Eastern Hills High School, Fort Worth. She is a member of National Honor Society. This year she was feature editor of the school newspaper and president of the school's Press Club. She plays the piano and organ, is a member of the school Select Choir.

Dorothy will major in elementary education at Texas Wesleyan College.

Edward Fore Jr. attends C. F. Brewer High School at Fort Worth; is a member of the National Honor Society; president of the school Chess Club this year, and president of the Mathematics Club last year. He has been an active radio amateur throughout his high school years.

He will attend Arlington State College, planning a career as electrical engineer in the communication field.

Beth Ann Burdick will graduate from Covina High School this spring. She won the Bank of America trophy in science and mathematics this year; has been a member of girls' service and honorary clubs throughout her four high school years. She is a life member of CSF, member of Intra-Club Council and was president of the Latin Club in her junior year, and a delegate to Girl's State in 1961.

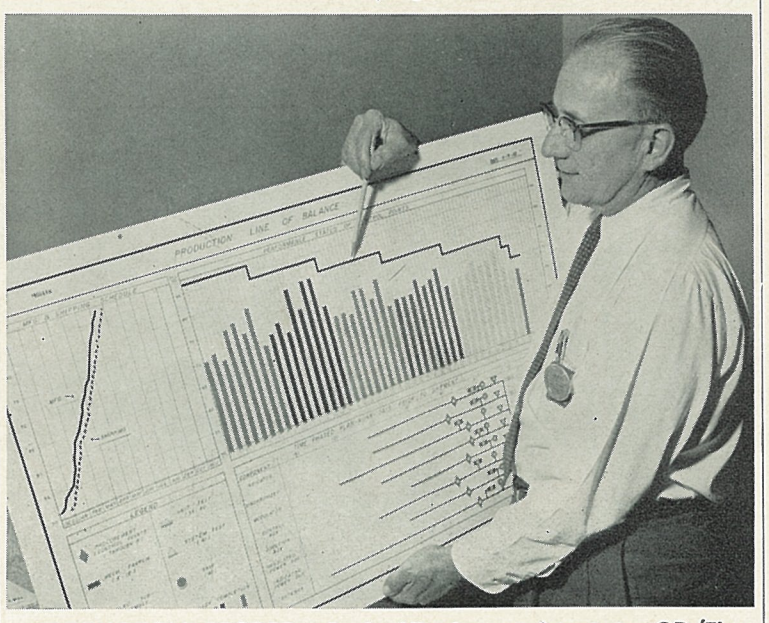
She will major in biological sciences at Stanford University, planning to be a medical doctor.

Robert Edgell attends Glendora High School where he is a member of both CSF and National Honor Society. He was on the varsity swimming team the last two years and a member of the local branch of Science Clubs of America.

Robert will major in physics at Harvey Mudd College, planning to be an engineering physicist.

GD/E's 'Line of Balance' Technique Charts Manufacturing Progress

First master chart in the production "Line of Balance" technique was issued within General Dynamics/Electronics factory operations at San Diego late last month.



PRODUCTION RECORD—R. L. Higgins, assistant to GD/Electronics manager of operations at San Diego, holds Line of Balance chart updated weekly to record progress during production.

The Line of Balance charting system can be used as a follow-on to the PERT system of recording progress of a program. While PERT is designed primarily to blaze the time-schedule trail in setting up a new program, Line of Balance charting takes over to measure actual production progress.

Although this reporting technique has been in wide use by the Navy in charting activities of prime contractors, GD/Electronics is one of the first companies on the subcontract level to put it into effect.

"The Line of Balance chart is a graphic presentation, in terms of end items, of progress required of functional areas involved in a production program," said R. L. Higgins, assistant to the manager of operations, who was responsible for setting up the system at GD/Electronics.

"It indicates, on a given reporting date, actual positions of these areas with respect to where they should be in order to meet schedules."

The chart tells the production story in four sections—graph of manufacturing and shipping schedule; time-phase plan of manufacturing; vertical bar chart showing performance of each area versus horizontal line of balance (optimum position); and legend explaining symbols and colors used.

Each week chart reproductions, together with detailed shortage or excess reports, are distributed to all supervision concerned.

"We already have concrete evidence of the value of this graphic means of recording production progress in the few weeks it has been in use," said H. L. Gates, manager of operations. "It definitely will be an important aid in keeping us aware of our position at all times and showing just where adjustments and special effort is required to meet our schedules."

CAUGHT ON FLY—Harry Lund and Forest Erwin, directors of GD/Convair-Astro Management Club bowling tourney, look harried as Larry Lawson snapped shutter during heat of kegling battle April 15.

GD/Electronics and GD/Astro Teams Lead in Club Bowling

Teams from GD/Electronics and GD/Astro swept the field to roll top scores in the second annual inter-division Convair-Astro Management Club bowling battle April 15 at Clairemont Bowl.

GD/Electronics No. 2 team topped the 41 teams competing with a high team scratch series score of 2,662.

Team members were Milt Walker, Jim Lawton, John Graves, Pat Carlton, Tony Zullo.

Anchor Men of GD/Astro scored 2,991 for high team handicap series. On the team were Larry Atwell, R. Trease, F. Bloschies, Carl Long, and Al Cohen.

In individual scoring, GD/Astro bowlers garnered all the honors. Chuck Quintin had a 618 for high individual scratch series; Atwell, 688, high individual handicap series.

Mike Brooks rolled 247 for high scratch game and Ray Fellows, 260, high handicap game.

"It was a highly successful tourney," reported Forest Erwin of GD/Astro and Harry Lund, GD/Convair, tournament directors. "There were as many spectators as bowlers and plenty of excitement in the inter-division rivalry."

Coming-up events will see the top GD/Astro team which won the NMA District A tourney in Anaheim last month traveling to Ohio for two meets next weekend. The team will enter the National Industrial Tourney in Dayton May 4 and go on to Toledo May 5 and 6 to take part in the National NMA Tourney.

Travelers will be Erwin, Jim Epperly, Eugene Harris, Dave Wells, Bill Martin, Mike Edwards.

Management Club and recreation association bowlers from both GD/Convair and GD/Astro will be competing in the Western Industrial Recreation Association tournament at Torrance in June.

GD/Astro and GD/Convair Split Honors as 2,000 See Rose Show

Nearly 2,000 persons crowded the Floral Association Building, Balboa Park, for the joint ARA-CRA Spring Rose Show. More than 1,000 blooms in 150 individual entries were shown April 15.

Top professional judges from the San Diego area officiated, with honors almost evenly divided between Astro and Convair Garden Club entries.

Top honors for six selected mixed blooms went to John Jodka, GD/Convair Dept. 91, while his wife Gloria, won the "mixed three" class.

"Queen of Show" (best rose displayed) was an entry by G. L. Scheibel, Convair Dept. 180.

Best florabunda was shown by Phyllis Files, GD/Astro Dept. 951, while Charles Ulrey, Dept. 193, Astro, displayed the best grandiflora. Top corsage entry came from Astro's Ann Freedman, Dept. 535, with Mrs. Henry Boyd, husband in Convair Dept. 31, showing the best arrangement.

Best child's arrangement was entered by Connie Boyle, daughter of Mr. and Mrs. C. T. Boyle, Dept. 250, Astro.

"The quality of blooms this year was the best ever," said Everett Henderson, ARA commissioner. "The crowd topped that at any previous General Dynamics flower show."

CRA Commissioner Gene Zimmerman and Henderson headed arrangements assisted by Phyllis Files, Mr. and Mrs. Charles Splinter, Joe Bores and Ann Freedman of Astro, CRA club president Henry Boyd and Mr. and Mrs. Walter McVay of Convair, and many other members of both ARA and CRA clubs.

Gardeners Entering Annual Rose Show

Gardeners at GD/Convair and GD/Astro will exhibit in the 35th annual Spring Rose Show of the San Diego Rose Society this weekend, April 28-29.

Entries will be taken after 7 a.m. on April 28 at Balboa Park's Conference Hall. The show will be open to the public Saturday afternoon and evening and from 10 a.m. to 6 p.m. on Sunday.

GD/Astro Volleyball Teams in Contention With GD/Convair in IRC Tournament

Two GD/Astro volleyball teams lead the Wednesday League in the current IRC tourney, with a GD/Convair team neck-to-neck with a city employees' group in the Friday League.

Astronets defeated Convair Engineers, 15-11, 11-15, 15-13, in first game April 4. A forfeit by Reliables the next Wednesday gave Astronets a second win to their credit.

In the same league Support Documentation won over the Hounds, 15-9, 15-13, in a two-out-of-three match and dumped City Engineers on April 11, 15-8, 15-12.

City Engineers took their first game from Reliables, 15-6, 15-7, and Hounds defeated Convair Engineers the second week by 15-12, 18-16.

Convair Spacemen blanked Design, 15-0, 15-0, in first Friday League match. Park and Recreation won from Project Support, 15-11, 15-13, and went on the next Friday to beat Design, 15-9, 17-15. Spacemen won their match the same night from Project Support, 15-13, 15-11.

Coming games will see Convair Engineers vs. City Engineers tonight (April 25); Reliables vs. Support Documentation; Hounds vs. Astronets.

This Friday Project Support will play Park and Recreation and Design will meet Spacemen.

Convair, Astro Skiers to Head For Mammoth

A few openings remain for skiers and non-skiers at both GD/Convair and GD/Astro to spend a weekend at Mammoth Mountain in the High Sierra May 5-6.

Late registrations are being taken by Helen Navoy, CY-5-2489; Joe Harris, AT-4-0278; Gene Rockafeller, Astro ext. 2868.

Accommodations have been reserved at Mammoth Mountain Inn adjacent to the ski area. A chartered bus leaves GD/Convair executive parking lot at 5:30 p.m. Friday (May 4) and GD/Astro parking lot west of Bldg. 1 at 6 p.m.

"Bring your bathing suit, sun glasses, and tanning lotion," warned CRA Commissioner Harris.

The annual Convair Ski Club Giant Slalom Race will be held on Sunday (May 6) starting at 10:30 a.m.

Highlight will be a fun race for novice skiers open to all with no entry fee. Six prizes, three for men and three for women, will be awarded.

Other events are the open club championship for perpetual trophy; open individual, three men and three women awards; and individual club championship for club members only on the short course. Six awards will be given winners.

Bob Wintz Captures Walker Golf Honors

WALKER AFB — ARA Golf Club here held a two-flight low-ball handicap tournament last month at the Walker AFB course.

First flight trophy winners were Bob Wintz, first, and Hank Hatch, second, while Bill Liberton, won second flight honors and Bill Hanks and Walt Baumgartner tied for second place. Hanks won the play-off.

A three-way tie for medalist pitted Hatch, Wintz and Bob Houp, with Houp winning after two holes in a "sudden death" play-off.

Family Teams Win In Walker Bowling

WALKER AFB — First place winners of the Thursday night mixed bowling league here are Phil and Marge Barmore, and Jack and Irene Westler.

Men's individual series trophy was won by Phil Barmore with 664, and Miami Milatzo took women's individual series honors with 510.

High individual game winners were Tom Chambers with 265 and Arlene Abrans with 200. Arlene also received a trophy for the "most improved" bowler, as did Jim Sent.

ANSWER MEN—Shown with visiting Col. K. D. Stevens, deputy commandant, Air Force Technical Institute, senior member of recent Air Force Education with Industry group here for management symposium, are J. P. Hopman, GD/Astro factory manager-assembly; P. D. Ferrara, chief engineer-administration; E. G. Hill, controller; G. M. Robertson, director of management systems.

Schneider Victorious in Three Master Class Pistol Divisions

Roland Schneider swept to victory in three master class categories during ARA Pistol Club's plant championship .22 matches earlier this month.

Schneider was aggregate winner with 745 of 800 possible points, won slow fire scoring 260 of 400, and timed fire with 194 of 200. J. S. Knutson won master class rapid fire with 196 of 200 points.

Marguerite Slater topped contenders in three expert class events, with a winning aggregate of 691, and 333 and 174 in slow and rapid fire matches. In expert class timed fire, Don Smock took honors with 184.

Bill Jungk joined the circle of three-match winners with a 683 aggregate, 326 slow fire, and 187 timed fire in the sharpshooter class, while Bill Winchell fired 181 to win rapid fire in this bracket.

Aggregate winner with 554 among the marksmen was Reed White, who also led the slow fire event with a score of 306.

Marksman class timed fire was won by Humbert Bonagura with 139, while Ralph Jungk scored 159 for rapid fire honors.

David Hodge's Son Rolls 505 Scratch

ALTUS AFB — David Hodge, 3rd, 12, son of David Hodge Jr., Dept. 617-1 here, bowled a 505 scratch series at the State Regional Tournament at Lindsey, Okla. His high game score was 211.

In league play David holds an individual high record of 219.

Twilight Linksmen To Meet Tomorrow

A meeting for all participants in the coming ARA Twilight Golf program will be held at 5:15 p.m., tomorrow (April 26) in ARA Clubhouse.

Players are asked to contact ARA Commissioner John Sentovic, ext. 831, if unable to attend the meeting.

CIVIC HELPER—Astro folk at off-site bases often become community leaders. C. Gilbert Evans, chief of administrative services, Walker AFB, is shown with 7th grade (St. Peter's) basketball team he coaches, which includes several Astro sons. Evans played Army basketball and collegiate ball at Kansas University and Creighton University, Omaha.

UP-TO-DATE—Displaying one of two costume changes each wore while modeling in recent Astro Wives fashion show at Warren AFB are Mesdames Don Jennings, Ronald Pratt, Jay Fowler, Miss Jan Brownell, Mesdames Don Wyler, R. V. Hicks, Ron Olsen and David Frank.

ARA Calendar

(GD/Astronautics Recreation Association has some 40 activities in operation for employees. For information, call ARA Headquarters, ext. 1111.)

★ ★ ★

ASTRO DIVERS — Meeting 7:30 p.m., May 1, ARA Clubhouse. Abalone dive, 10 a.m., May 5, foot of Marine St., La Jolla.

ASTRO NOTES — Chorus rehearses 7:30 p.m., Mondays, ARA Clubhouse.

ASTRO PLAYERS — Comedy "Wake Up Darling," 8:30 p.m., May 17, 18, 19, 25 and 26, ARA Clubhouse. Tickets at employee services outlets.

BOWLING — Summer leagues for Clairemont and Parkway Bowls now forming. Applications at employee services, Bldg. 8, or ARA Headquarters.

DISCOUNT TICKETS — World's Fair tickets, adults $6 (regular $10), children, $3.75, at employee services, Bldg. 8.

GARDEN CLUB — Meeting May 2, 8 p.m., Federal Bldg. Balboa Park. Guest speaker will discuss soils and fertilizers.

RIDING CLUB — Horse show, 9 a.m., May 6, riding arena, ARA Area. Free. Trail Ride at Meadow Brook Ranch, 2 p.m., April 28. $2 per hour.

ROCKHOUNDS — Afternoon lapidary classes open May 1 and 3, 1-3 p.m., ARA Clubhouse.

SOCIAL CLUB — Organizational meeting for 18-and-older group, 7:30 p.m., April 28, ARA Clubhouse.

SPORTS CARS — Atlas Rally IV, April 29. Starts from GD/Astro reception center, 7:01 a.m.

TEEN-AGERS — "Sock hop," 7:30-11 p.m., May 5, ARA Clubhouse. Informal dress, prize for cleverest socks. One guest with each membership card.

TENNIS — Spring tournament, April 28, 29, May 5, 6, Morley Field Courts. Enter with Ben Cendali, Sycamore ext. 58.

TRAVEL — Group trip to World's Fair, July 21. Ten-day trip, bus to Seattle with en route stops, air return, $242 per person. Register at ARA Headquarters.

TWILIGHT GOLF — Entries now being accepted at employee services, Bldg. 8, for two leagues (May 7-July 6), (July 9-Sept. 7). Play Tuesdays and Thursdays, 4:30 and 5 p.m., Stardust Country Club.

Social Club Meeting Scheduled Saturday

"Meet new people and have fun."

These are the aims of a proposed ARA social club meeting for the first time at 7:30 p.m., April 28 in ARA Clubhouse.

The group is designed for single men and women, 18 and older, with a view to widening acquaintances through dances, card parties and other events held several times monthly.

All GD/Astro employees interested in forming such a club have been invited to attend the organizational meeting and offer suggestions. Dancing will follow a business session.

Tool Stores Open To All Employees

All General Dynamics employees located at either Plant 1 or Plant 2, GD/Convair, are entitled to make purchases at the employees' tool stores through payroll deductions.

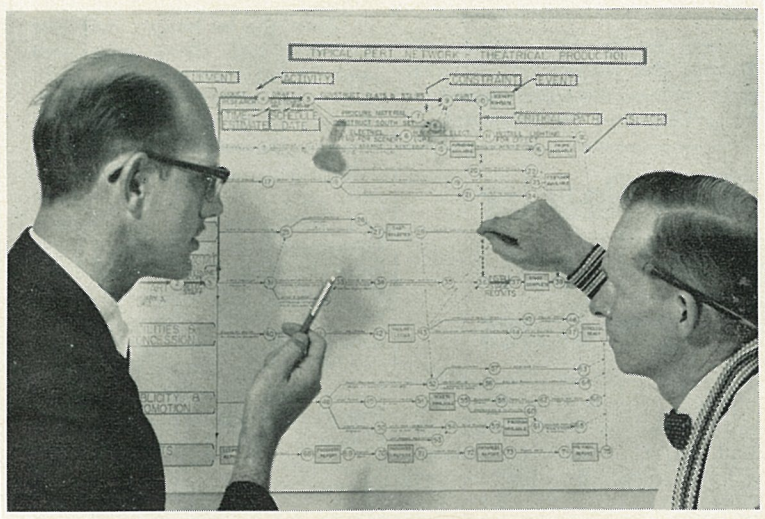
The convenience is open to all General Dynamics people, regardless of division. Store location at Plant 1 is in north end of Bldg. 32; at Plant 2, in Bldg. 2.

Second Shift Hams Will Meet April 27

Second-shift unit of ARA Radio Club will meet at 1:15 a.m. April 27 in the Radio Room of ARA Clubhouse.

Election of officers will be held and attendance of all members has been urged. A movie on transistors will be shown.

Sports & Recreation



PLAY PLANNERS—Milt Ball, left, production manager, and Dick Middleton, publicity chairman for Astro Players, examine PERT network used to produce drama club's first show of year, "Wake Up Darling," opening May 17 in ARA Clubhouse.

PERT System Applied For Play Production

A really "PERT" play will be staged by Astro Players, ARA drama club, when "Wake Up Darling," a three-act comedy, is presented at 8:30 p.m., May 17, 18, 19, 25 and 26 in ARA Clubhouse.

PERT (Program Evaluation and Review Technique) has been applied to the play's production by Dick Middleton of tool and operations planning (Dept. 401-2), and Milt Ball, PERT program analyst in Dept. 152.

GD/Astro uses PERT—a system of work analysis which divides any project into work units, then relates them in terms of sequence and interdependency — on a number of missile and space vehicle projects.

Reasoning that a system to handle such a complex program as missile production could be applied equally well to play production—costumes, scripts, publicity, etc. — Ball and Middleton worked out a PERT network for "Wake Up Darling."

Their chart shows the relation of each step from script selection to opening night, providing, they say, better coordination of committees and a fuller sense of urgency for individual club members.

Everything is on schedule, including rehearsals with the cast of Dick Elbe, Ann Cullen, John Brigante, Annabel Audet, Dixie Quesenberry, Gretchen Garb Poindexter, W. A. Quill, Art Wright and Genger Koger. John Cone is director.

"Wake Up Darling" concerns the back stage adventures of a modern show girl.

Next step on the PERT chart is tickets—now on sale at employee services outlets and from Astro Players members. Donations are $1 for adults, 50 cents for children 12 and younger.

'Crazy Socks' to Set Teen-Age Dance Mood

Sports clothes and "crazy" socks will set the mood for ARA Teen-Age Club's next event—a sock hop—from 7:30 to 11 p.m., May 5, in ARA Clubhouse.

One guest will be admitted with each membership card, and all attending have been asked to wear their "loudest" socks. A record album will go to the wearer of the cleverest footwear.

ARA Teen-Age Club is open to all GD/Astro dependents in their teens. Parents may complete club membership applications available at employee services, Bldg. 8.

All club events are carefully supervised.

Color Slide, Stereo Show on Schedule

"Scandinavian Holiday," a color slide and stereo sound show produced by a General Dynamics man and wife team will be shown at 8 p.m., May 5, in the Conference Bldg., Balboa Park.

The show is open to the public without charge.

The event consists of pictures taken by George Marlor of (GD/Astro Dept. 144-0) and his wife, Thelma (GD/Convair Dept. 400-7), during a 25-day tour of Denmark, Norway, and Sweden.

Crowley Lake Film To Be Shown May 7

A movie on the opening of Crowley Lake will be shown at the next meeting of ARA Fishing Club, 7:30 p.m., May 7, in ARA Clubhouse.

During the coming months the club plans a variety of activities including fish fries, charter fishing parties, a father-son contest. and continued projects in the clubhouse workshop where members build and repair their own tackle.

Fishing Club membership applications are available at employee services office, Bldg. 8. Family dues are $1 per year.

SPRING NET TOURNEY TO BE ARA'S FIFTH

ARA's fifth annual spring tennis tournament will get under way this weekend with play scheduled April 28, 29 and May 5 and 6 at Morley Field courts.

No entry fee will be charged. The tennis event is open to all GD/Astro employees and family members. Trophies will go to winners and runners-up in men's singles and doubles, women's singles, and mixed doubles.

A consolation round for losers singles is also planned.

ARA Commissioner Ben Cendali, Sycamore ext. 58, will accept tournament entries, and can provide additional information on the event.

'Talking, Listening' Workshop Is Slated

A one-day workshop in "The Stubborn Problems of Talking and Listening" will be sponsored by GD/Astronautics Management Club's education committee in ARA Clubhouse, 10 a.m., to 4 p.m., April 28.

Open to all Management Club members, the workshop will be conducted by Dr. R. E. Farson and Mrs. Frances Torbert of the Western Behavioral Sciences Institute.

A limited number of tickets at 50 cents per person are available from Management Club Boosters throughout GD/Astro facilities.

First ARA Horse Show Of Year To Be May 6

ARA Riding Club will present its first horse show of the year in the riding arena, ARA Area, at 9 a.m., May 6. The event is expected to last until about 4:30 p.m., and is open to the public.

The show will consist of 20 events in showmanship, horsemanship, special classes, flag and barrel races, etc. Trophies will be awarded to first place entries in each class and to the high-point winner. Ribbons will go to placing entries.

Fee for those showing horses is $1 for each of the gymkhana classes and $2 each for all other events. Les Allen, ext. 2377, may be contacted for further information.

The ARA arena has been newly painted in light green to eliminate glare and is equipped with a sprinkler system to keep down dust. Some grandstand seating is available, and food, coffee, and soft drinks will be sold at the arena.

The Riding Club will also hold a two-hour trail ride at Meadow Brook Ranch between San Marcos and Vista at 2 p.m., April 28. Cost is $2 per hour. Reservations may be made by calling ARA headquarters, ext. 1111.

ARA Offering Bargain Trip To World Fair

A bargain rate package trip to the Seattle World's Fair July 21 through 30 is being offered by GD/Astro Recreation Association.

The ten-day tour includes sightseeing and overnight stops at Hearst Castle, San Francisco, Eureka and Salem en route to the Fair. This portion of the trip will be made by bus.

Hotel accommodations are included in the package price as well as Seattle sight-seeing and Fair admission. Return trip on July 30 is by air.

Total cost of the tour is $242 per person. Reservations ($50 deposit required) are being accepted at ARA Clubhouse office from 7:45 a.m. to 5:30 p.m.

GD/Astro employees and dependents are eligible to take part, and have been urged to make reservations as soon as possible due to space limitations.

For Fair visitors preferring to make the trip on their own, special exchange coupons are now available at the employee services office, Bldg. 8.

Costing $6 (regular price $10) for adults, and $3.75 for children 12 and younger, the coupons can be exchanged at the Fair for ticket books.

Hemingway Elected Ham Club President And Ed Carson VP

New officers will be at the helm of ARA Radio Club (first shift) when the group meets tomorrow (April 26) at 7:30 p.m. in Radio Room, ARA Clubhouse.

New president is Bill Hemingway (W6SHC); with Ed Carson (W6VNM), vice president; Pat Smith (K5TIQ), secretary; Jim Moody (K6MFY), treasurer; and Reed Evans (W6EHR), station engineer.

Ed Dodero is ARA commissioner.

Club participation in the National ARRL Field Day, June 23 and 24, will be discussed.

Afternoon Rock Classes Slated

Two afternoon lapidary classes designed for second-shift employees and dependents have been announced by ARA Rockhounds.

Both a Tuesday and Thursday series are planned, to meet from 1 to 3 p.m. in the Rockhound workshop, ARA Clubhouse. Each class is limited, and registration is on a first-come, first-served basis.

Instructor Jack Bowles will brief students on use of lapidary equipment for cutting, grinding, polishing and jewelry making. Cost of the eight-week, 16-hour course is $4 per student.

Prerequisite for registration is that the student be an adult member of Rockhounds (family membership costs $2 per year). New students may contact Fred Baugh, ARA commissioner, ext. 3580, second shift, to register, or attend the first class meetings May 1 and 3.

At their April meeting, Rockhounds elected new oficers to be installed in June.

New president is Ivan Hamblin; Walter Pauls, vice president; Mrs. Joe Joneikis, secretary; and Earl Smith, treasurer. Members of the board of control are Ray Beard, Bill Discher, Joe Joneikis, Walter Passino, Francis Smith, Ernest Twist, Gerald Halterman, and John Stussy.

Herm Reichert Diver of Year

Herm Reichert was named "Diver of the Year" at a meeting of Astro Divers, ARA skin diving club, based on points earned in eight diving competitions during the year.

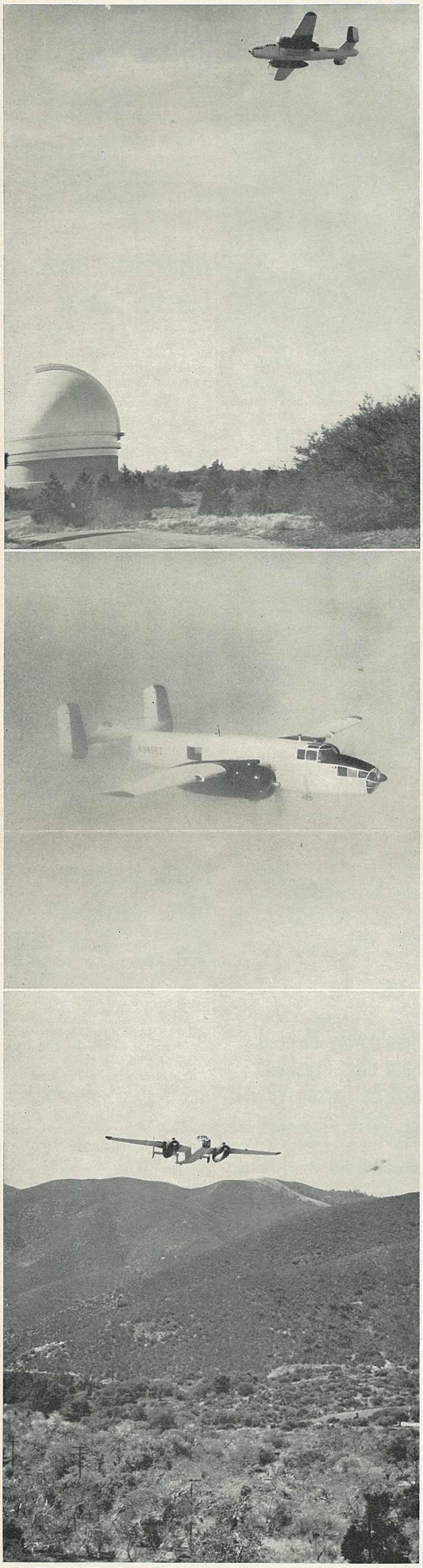
Jorge Zorrilla placed second, while ARA Commissioner Cliff Kickbush, Dick Sancho and Sam Spadero tied for third.

The club will hold a business meeting at 7:30 p.m., May 1, in ARA Clubhouse. Jim Cooper of Scripps Institution of Oceanography will show movies of recent diving in Baja California. Next competition dive is for abalones at the foot of Marine St., La Jolla, at 10 a.m., May 5.

At a recent club event, the group abandoned the ocean for a swimming pool, competing in penny dives, swims in blue jeans, and while wearing weight belts.

John Smalldino took first place, Sancho and Zorrilla tied for second, Frank Samuelson, fourth, Bob Nichols, fifth and Herb Boynton, Bob Kent and Reichert tied for sixth.

LEADING DIVERS—Officers and award winners in Astro Divers annual "Diver of Year" contest are shown at presentation. From left, Frank Samuelson, president, Herm Reichert, first place winner, Jerry McMurry, treasurer, Charlie Blakelock, secretary, Bill Carter, vice president, Cliff Kickbush, ARA commissioner and one of third place winners, and Jorge Zorrilla, second. Not shown are third place winners Dick Sancho and Sam Spadero.



SAFE FLYING—Terrain Avoidance Radar system, developed by General Dynamics/Electronics at San Diego, gets workout in leased B-25 during flight tests through Laguna Mountains (top) with Palomar Observatory in foreground, in blinding cloud cover (center), and over rugged terrain (lower). Warning system allows low-flying craft to maintain constant distance above obstacles beneath. It is slated for use in Navy A3J attack bomber being built by North American; is termed suitable for commercial as well as military craft.

GD/Astro Housewife Wins $1,000 Award

WARREN AFB — More fortunate than most housewives at the supermarket, Mrs. Shirley Seeley, wife of site administration supervisor O. C. Seeley, Dept. 351-7, here, made a profit on a recent shopping trip.

Mrs. Seeley was winner of $1,000, the largest of several cash prizes awarded recently by a Cheyenne supermarket.

TRIGA Reactor Power Upped By Four Times

The new TRIGA Mark III, a "pulsing" nuclear reactor four times more powerful than the Mark I and II, has been announced by General Dynamics Corporation.

Routine operation at 1,000 kilowatts and controlled, split-second pulsing to a peak level of 1,000,000 kw are available in the self-regulating Mark III made by General Atomic Division at San Diego. For comparison, the TRIGA Mark I below-ground and Mark II above-ground models both have 250-kw steady-state and 250,000-kw pulsing power levels.

During the few thousandths of a second that the new Mark III is pulsed to its peak of 1,000,000 thermal kilowatts, the reactor's rate of energy output is equivalent to the electric power used by a city of 500,000 population. The TRIGA automatically cuts itself back at maximum levels.

New opportunities are opened for basic research in the physical and biological sciences and for applied research and testing in medicine, agriculture, industry and space technology by the high density of neutron and gamma radiations produced in the nuclear core of the TRIGA Mark III, combined with its pulsing capability and additional experimental facilities.

'Dynamic America' Sales Continuing

General Dynamics employees may still purchase copies of "Dynamic America," story of the Corporation, at special discount prices.

Employee services at all divisions have a limited number yet available at the reduced price of $7.50 for General Dynamics purchasers. Regular retail price is $20.

Orders from off-site facilities will be forwarded to main division offices.

The profusely-illustrated volume recounts the history of General Dynamics in correlation with the country's industrial progress.

★ ★ ★

Dynamic America Copies Presented

WALKER AFB — GD/Astro operations has presented copies of "Dynamic America" to four Roswell, N. M., area libraries for National Library Week.

Receiving the publication were the Roswell High School library, St. Peters, New Mexico Military Institute and Walker AFB library. Previously, Astro Wives Club presented a copy to the Carnegie library.

California Returns To Daylight Saving

General Dynamics people in California will turn their clocks ahead an hour this Sunday (April 29), when the state goes on Daylight Saving Time.

According to California state law the summer time goes into effect the last Sunday in April of each year.

The time change affects General Dynamics divisions in San Diego, Pomona, and all off-site locations within California.

Big Hong Kong Welcome Greets Cathay's 880-M

A toast to Cathay Pacific Airways' new Convair 880-M wished her "happiness" on arrival at Hong Kong the first of this month.

"May she be happy, may she prosper, and those who own and fly her," proposed W. C. G. Knowles, chairman of Cathay Pacific, as he welcomed official guests aboard.

Eighteen captains, first officers, and flight engineers, who had been training at General Dynamics/Convair in San Diego, were on board on the delivery flight. Capt. Dave Smith, Cathay Pacific's flight superintendent, was at the controls.

Also on the flight were A. E. Clifford of the Hong Kong Air Registration Board, and D. S. Delaney, Cathay's assistant chief engineer, who had been at GD/Convair as the airline's representative. U. S. Johnson and C. J. Falkenthal of GD/Convair production flight accompanied the plane.

They will remain with the airline to help with crew training for a few weeks.

R. K. Hall, GD/Convair field service supervisor, along on the transocean trip, reported a pleasant, satisfactory flight all the way from San Diego to Honolulu, Wake Island, Guam, and on to Hong Kong, flying over Northern Luzon en route.

"Hong Kong was having a bit of rain and low clouds, but the approach was right in the slot and as perfect as the landing. It had to be," he wrote back, "for Cathay Pacific had turned out en masse to welcome us. Everyone was lined up in neat rows and at attention when the brakes went on with only a fraction of a minute to spare before 12:00 (April 2, Hong Kong time). Perfect timing and an impressive arrival, and all the more remarkable since this date and time had been selected several months previously."

The 2,600 lbs. of woodworking machinery to set up a complete work shop, which had been ferried for CARE aboard the 880-M, was presented to Tsun Wan Secondary Modern School as a gift from the people of America.

Cathay Pacific's Convair jetliner went into service the week after its arrival (April 11). Initially, it will operate between Singapore, Bangkok, Hong Kong, Manila, Taipei, and Tokyo.

American Airlines Pilots Praise 990

American Airlines pilots flying the 990 Astrojet, now in sixth week of service, have become "avid fans" of the Convair-built jetliner.

They like the way it feels in the air and the way it performs, according to a recent article in American Airlines company publication.

Altogether, the 990 has "surpassed fondest hopes of everyone connected with the 990 program at AA," since it went into passenger service over American's domestic routes in mid-March.

WELCOME—Ducan R. Y. Bluck, Cathay Pacific's commercial manager, steps off Cathay Pacific's Convair 880-M following inspection of newly-delivered jetliner on its arrival at Kai Tak Airport, Hong Kong.

Dept. Asst. Secy. Sits in at GD/FW On Value Engineering Seminar

James N. Davis, Deputy Assistant Secretary of Defense, was "favorably impressed" with value engineering efforts at GD/Fort Worth following a recent half-day orientation.

Davis sat in on a "live" value engineering seminar and was later briefed by top management.

He spoke that evening to members of Dallas-Fort Worth Chapter of Society of American Value Engineers.

Discussed at the GD/Fort Worth briefing were the company's vendor value control program, including the cost-target system in which estimated cost is applied at the design level.

Frank W. Davis, president, and M. L. Hicks, vice president-legal and procurement, made the main presentations.

Davis reportedly saw "some things in the GD/Fort Worth value engineering program I had not expected to see in industry for the next five to seven years.

"You can expect stronger emphasis on value engineering in the future," the assistant secretary told members of SAVE.

"The Defense Department is at this moment modernizing its armed services procurement regulations, liberalizing the value engineering provisions and motivating the kind of contracts in which these incentives can be included."

He urged all industry to take a "less entrenched point of view" and search for "changes which will extend life or reduce labor, materials, and therefore cost."

Davis said a value engineering manual for use throughout defense and industry is about to be prepared.

"She never misses a pay day."

GD

ASTRONAUTICS EDITION

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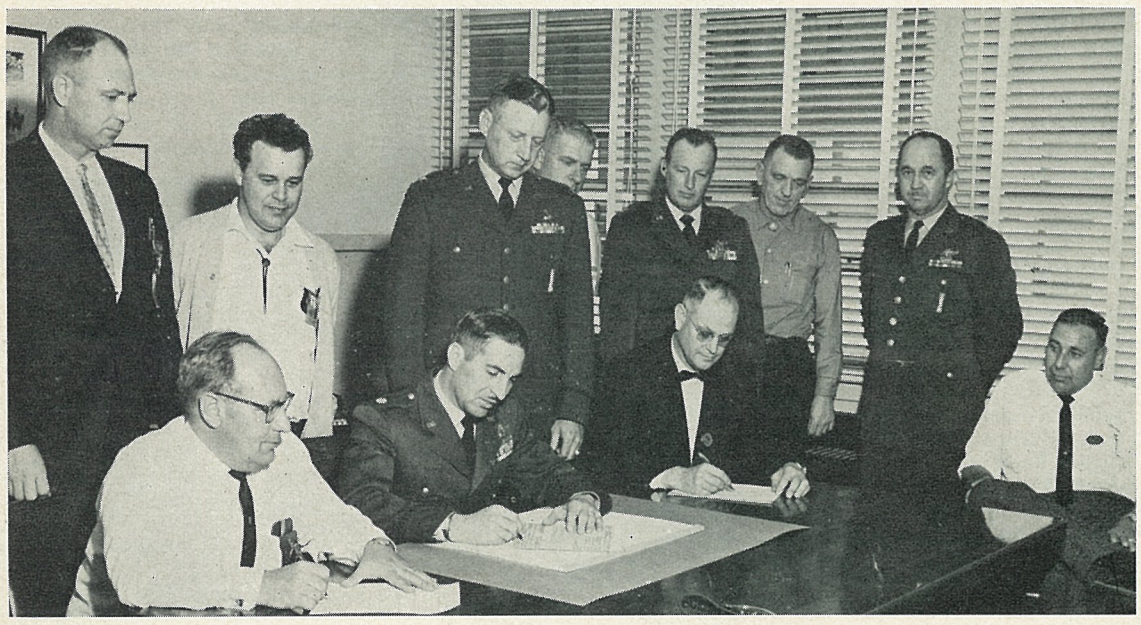
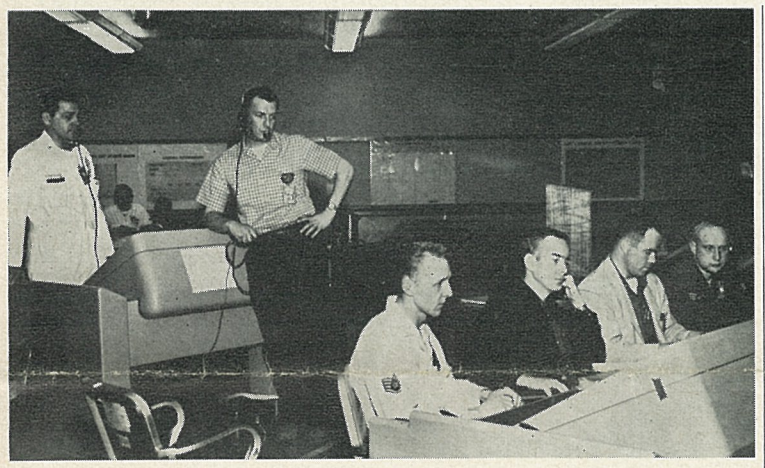


DOTTED LINE—Completion of "Golden Ram Follow-On" at Warren AFB April 20 found this group at "sign-off." Seated, from left: O. C. Seeley, GD/Astro, Maj. G. F. Kroman, 389th SMW, V. T. Miller, Astro, J. J. Williams, Astro team chief. Standing: J. C. Boyman, Astro, S. H. Smith, Astro, Col. W. E. Todd, SATAF commander, H. A. Palmer, AFQC, Lt. Col. R. T. Minett, 564th SMS, E. F, Maus, AFQC, Lt. Col. R. E. Tabor, 564th SMS.



CHECKOUT—Joint SAC and GD/Astro team conducts checkout operation at LOB, 564-A, Warren AFB, during close of Golden Ram Follow-On. D. T. Barber (checked shirt) was complex supervisor.

Roger Lewis Maps Future Of Dynamics

Expressing faith in the future of General Dynamics Corporation and promising vigorous pursuit of profitable business, Roger Lewis, president and chief executive officer, told shareowners last month that corporate losses have now been arrested.

Lewis, who was subsequently elected chairman of the Board of Directors, in addition to president, reported that sales for the first quarter of 1962 totaled $525 million and consolidated net earnings were $10,736,000.

"We are trying to improve these results," he continued. "This will be done product by product, division by division."

Since joining Dynamics Feb. 1 as a director (he became president Feb. 22), Lewis said he had visited all divisions and met the key people.

"I have been tremendously impressed with the human resources and technical capability, as well as the facilities. These are the essentials of a strong company today. I believe General Dynamics can and will be even stronger in the future."

Lewis was elected chairman of the board April 27 at an organization meeting of directors following the annual shareowner meeting April 26 in Dover, Del. At the same time, Earl D. Johnson was re-elected board vice chairman and Henry Crown was re-elected chairman of the executive committee.

Following is a partial text of Lewis' remarks to shareowners at the Dover meeting:

"As you know, this company has been built on a philosophy of diversity and balance among commercial operations, advanced research, and defense production, and upon even further diversity within the area of defense itself," Lewis said.

"This balance of operations is extremely important to us. Our commercial operations are stable and currently profitable, and not limited by governmental restrictions on earnings. Profits permitted by the services on defense procurement, on the other hand, have been consistently lower year by year.

"This factor, however, may change. There seems to be a trend nowadays away from the old standard of cost-plus contracts toward incentive contracts, with greater rewards for good performance. This is a trend that we welcome.

"The production of weapon systems in our major defense divisions is in its very nature cyclical. Neither for a division nor for the company as a whole, is it always possible to

(Continued on Page 3)

Eight Nominated For Cost Award

Eight General Dynamics/Astronautics men whose combined Cost Improvement Proposals (CIPs) led to savings of $4½ million are candidates for the 1961 President's Award.

The winner will be announced by President J. R. Dempsey at tonight's (May 9) meeting of GD/Astro Management Club.

The President's Award is annual recognition for the salaried employee whose proposal is considered the outstanding contribution to GD/Astro cost reduction program.

This year's candidates are T. E. Becht, Dept. 831-1; J. L. Bigley, Dept. 331-1; R. E. Bruce, Dept. 402; J. V. Dickson, Dept. 110-0; R. T. Morris, Dept. 460; M. O. Ramsey, Dept. 450; A. R. Stockett, Dept. 337-5; and F. P. Vining, Dept. 758-0.

Becht's proposal concerned reducing procurement documents and inventory records on controlled items of less than $10 unit value. His simplified method resulted in estimated savings of $176,335.

Establishment of a "back yard" where excess test ground support equipment could be stored "as is," then repaired as needed, was the $1,723,747 idea submitted by Bigley.

From Bruce came a $108,476 proposal for repairing leaks in age-hardened K-monel ducting by heli-arc fusion welding without subjecting them to re-heat treatment.

Dickson's idea eliminated hundreds of pounds of paperwork by consolidating several operational spare parts contracts to support all related production contracts, and saved $1,078,000.

Morris and Ramsey teamed up on another proposal with $1-million-plus savings. Their idea reduced GD/Astro's costs for perishable tools required in activating Atlas missile sites throughout the country by $1,037,376.

Stockett concentrated on modifying posting for status reports and shipped status reports for priced spare parts lists, and produced an idea which saved $183,600.

Vining submitted three proposals with total savings of $359,390.

One concerned elimination of an additional major production fixture ($242,590); another involved simple changes to speed production on a fixture ($54,720).

$5½ Million Saved By GD/Astro Ideas

Five and one-half million dollars!

Those were savings to General Dynamics/Astronautics resulting from Employee Suggestion (ES) and Cost Improvement Proposal (CIP) programs during 1961.

During the year, 2,430 money-saving ideas were submitted by hourly employees who received 10 per cent of estimated savings during one year, or minimum $10 awards for their suggestions.

Savings on the 393 CIPs submitted by salaried employees totalled $5,194,095.

GD/Astro Meets Contract Dates On Golden Ram

WARREN AFB — Well within contract dates set by the Air Force, and exactly on operational schedule established by General Dynamics/Astronautics almost a year ago, the Golden Ram program was completed here April 20.

Astronautics was integrating contractor for the program, with the phase just completed known officially as the Golden Ram Follow-On (GRFO).

Three Air Force installations have been involved in GRFO, Vandenberg AFB, Offutt AFB and Warren AFB. Astro work forces began building for the tasks at Vandenberg and Offutt last summer and at Warren in the fall. Vandenberg work was completed last fall and Offutt earlier this year.

The Air Force describes GRFO as an Atlas "follow-on updating" similar to modernization programs that add improvements to aircraft.

Program objective was a thorough review of equipment, technical data and personnel to allow for incorporation of necessary changes and improvements which would enhance maximum operational readiness capability.

Marking completion here, a "sign-off" dinner for 51 guests was staged at the Plains Hotel, Cheyenne. Key Air Force attendees included Col. G. T. Chadwell, commander of the 389th Strategic Missile Wing; Col. W. E. Todd, SATAF commander here; and Lt. Col. Jerry Wolf, representing the Ballistic Systems Division. E. A. Reynolds, Astro's director of product support, W. F. Chana, manager of support field operations, and J. J. Williams, chief of Site Modification Team No. 2, led Astro participants.

Speaking of the program, Reynolds said:

"Successful completion of this work well within schedules and in the face of adverse weather and other factors reflects highly on those involved. Too, it clearly establishes Astronautics capability to handle future tasks of this nature on this or any weapons system."

Product support department has accomplished GRFO, drawing assistance from other Astronautics departments and functions as needed.

Actual work in the field fell to Site Modification Teams. While

(Continued on Page 2)

Dempsey Presents Appearance Awards For March Contest

President J. R. Dempsey recently presented March awards in General Dynamics/Astronautics plant appearance competition to representatives of winning departments in the contest's four area categories.

Eric Callard accepted the office area award for quality control (Dept. 141-1 and 141-5). Components test (Dept. 564) was laboratory area winner with R. S. Campbell accepting; K. E. Harris accepted the warehouse and crib storage award for materials (Dept. 833-3); and J. E. Merk received the production area plaque for sub-assembly (Dept. 759).

The contest is administered by the safety section of industrial relations (Dept. 130-8) with a view to improving the neat, business-like appearance of work areas throughout GD/Astronautics.

Plattsburgh Gives $1,000 to 'Y' Fund

PLATTSBURGH AFB — GD/Astro employees here, through action of their Con-Trib-Club, gave $1,000 recently to an all-out YMCA building fund drive.

L. H. Main (Dept. 620-3) and Cliff Clickner (Dept. 620-5) presented the donation on behalf of Astro employees to Alan Booth, campaign chairman, and Dr. Edward Siegel, board member.

The drive, which has already netted $247,741, will enable additional facilities to be built in YMCA quarters here.

Daylight Saving Time Causes Revision In GD/Astro Off-Site Airlift Schedule

Return of California to Daylight Saving time last week resulted in revised schedule for some airlifts linking San Diego with General Dynamics/Astronautics off-site operations.

Only California stations were affected by changes involving C-118 flights to and from Cape Canaveral. Eastbound flights (Sunday, Wednesday and Friday) now depart at 4 and 6 p.m. (local) from Los Angeles and San Diego respectively.

Westbound, the plane reaches San Diego at 8:35 p.m. and Los Angeles at 10 p.m., Mondays, Thursdays and Saturdays.

Schedules for Convair 240s to GD/Astro off-site bases were considerably revised.

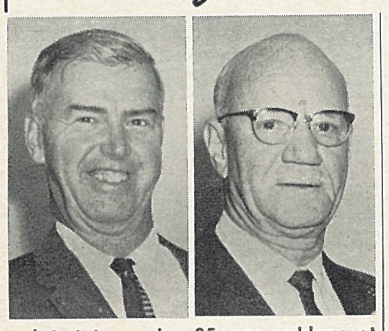
The eastbound flight on Monday, Wednesday and Friday departs San Diego at the usual 7:30 a.m. local time. All other points on the schedule were moved one hour earlier.

Westbound (Tuesday, Thursday and Saturday) all departures and arrivals are slated one hour later, with exception of the San Diego arrival now scheduled for 6:30 p.m. (local).

Local times on Martin 404s (San Diego - Vandenberg AFB) and the C-47 from San Diego to Norton AFB, Edwards RS, and Vandenberg AFB remain unchanged.

Additional information on schedules for employees traveling on company business is available from GD/Astro's travel reservation center, ext. 4355.

Log Book Entries



Latest to receive 25-year emblems at GD/Astronautics are Clifford O. Ekrem, Dept. 595, left, and O. E. Stewart, Dept. 143-9.

Promotions

MAIN PLANT

Promotions to or within supervision effective April 23.

Dept. 101, Data Processing: To data processing supervisor, E. A. Gingrich Jr. To data processing asst. supervisor, L. G. Atwell.

Dept. 140-0, Reliability Control; To asst. to director of reliability control, E. S. Winlund.

Dept. 141-1, Quality Control Office: To inspection supervisor, S. Petcher.

Dept. 143-1, Inspection: To inspection asst. supervisor, A. N. Ennis. To inspection supervisor, J. G. Sugg.

Dept. 150-0, Management Systems Administration: To asst. to director of management systems, S. Y. Johnson.

Dept. 170-1, Organization & Systems: To organizations and systems supervisor, V. Burns. To work measure supervisor, G. B. DuRall.

Dept. 193-3, Industrial Accounting: To accounting asst. supervisor, G. J. Ward.

Dept. 222-1, Production Control: To production control asst. supervisor, F. E. Smith.

Dept. 223, Production Control: To production control general foreman, W. F. Ward. To production control foreman, B. L. Lange.

Dept. 290, Applied Manufacturing Research & Process Development: To manufacturing development asst. supervisor G. J. Langford.

Dept. 322-6, Support Publications: To support publications asst. supervisor, J. M. Gilliam, M. M. Gordon, G. P. Neal.

Dept. 331-0, Support Supply: To GFE general supervisor, G. H. Woodberry.

Dept. 335-2, Service Parts: To support logistics asst. supervisor, B. M. Griffin.

Dept. 351, Field Modification: To receiving and stores asst. foreman, W. A. Dickenson. To modification planning and scheduling supervisor, O. C. Seeley.

Dept. 510, Engineering Department Management: To asst. project engineer, G. W. Eaton, L. R. Zemlin. To asst. project manager, L. F. Bell, E. Lindkvist.

Dept. 524-6, Engineering Management Systems Section: To clerical asst. supervisor, M. McCrary.

Dept. 539-5, Design Liaison (ERS): To activation engineering asst. supervisor-base, G. Graff Jr., J. T. Graham. To design group engineer, J. R. Cook, D. W. Hale, W. H. Hill, M. L. Male.

Dept. 539-6, Design Liaison (Dyess). To activation engineering asst. supervisor-base, H. L. Brendle, F. D. Kuenzel. To design group engineer, S. L. Call, F. G. Kade, G. D. Simmons, T. S. Strait.

Dept. 539-8, Design Liaison (Plattsburgh): To activation engineering asst. supervisor, C. F. Thomas Jr.

Dept. 545-6, Electrical Design Section: To design group engineer, F. A. Manley.

Dept. 592-1, Applied Research Laboratories Section: To chief of materials and research, A. Hurlich.

Dept. 603-0, Base Activation: To activation scheduling supervisor, J. A. Morris.

Dept. 781-0, Electronics Manufacturing: To asst. foreman, R. R. Brumfield, W. M. Young, K. M. Hemmingson.

Dept. 782-0, Electronics Manufacturing: To asst. foreman, G. E. Mayer.

Dept. 783-0, Electronics Manufacturing: To asst. foreman, L. Porro.

Dept. 851-2, Material Services: To clerical asst. supervisor, J. V. Gallagher.

Dept. 951-7, Centaur Technical Control: To asst. project engineer, J. L. Johnson.

Dept. 959-7, Centaur Reliability Control: To process control supervisor, R. D. Kesler.

Dept. 966-8, Centaur Design Engineering: To electronics group engineer, M. A. Telian.

Dept. 974-4. Centaur Test Operations: To asst. flight test group engineer, H. W. Maier.

LINCOLN AFB

Dept. 616, GD/Astronautics Operations: To inspection asst. supervisor, M. Mondragon. To inspection supervisor, E. E. Leger.

PLATTSBURGH AFB

Dept. 620, GD/Astronautics Operations: To asst. foreman, G. E. Laidley, F. E. Smalley, J. R. Teague, M. F. Valin. To launch complex asst. supervisor, G. H. Wilson.

WALKER AFB

Dept. 619, GD/Astronautics Operations: To launch complex asst. supervisor, W. M. Holland. To MAB asst. supervisor, H. J. Stockwell.

Service Emblems

MAIN PLANT

Service emblems due during the period May 1 through May 15.

Thirty-year: Dept. 700-0, J. P. Hopman.

Twenty-year: Dept. 100-0, J. M. Rogers; Dept. 250-5, L. W. Green; Dept. 510-3, H. A. Mellinger; Dept. 581-1, W. B. Shirrod; Dept. 600-0, P. M. Prophett; Dept. 759-0, C. E. Roach Jr.; Dept. 860-0, J. K. Williams; Dept. 956-0, Leroy Moore Jr.

Fifteen-year: Dept. 222-2, Joan M. Noga; Dept. 401-5, W. G. Atkins, Dept. 961-5, Y. K. Hong.

Ten-year: Dept. 143-2, H. G. Haxby; Dept. 146-7, J. M. Norman; Dept. 193-3, Naomi G. Nassar, Frances L. Roe; Dept. 196-0, Anthy A. Valaskos; Dept. 210-0, Tibor Rockar; Dept. 223-2, B. M. Maier; Dept. 343-4, D. S. Miller; Dept. 351-5, W. A. Nichols; Dept. 401-2, Richard Conshafter; Dept. 403-1, L. C. Albright; Dept. 531-2, Gerard Bax, P. A. Bowman; Dept. 551-2, H. W. Donovan; Dept. 581-4, Cecile Simons; Dept. 597-2, R. A. Westerwick; Dept. 598-0, W. L. Brown; Dept. 756-0, Leo Mazon Jr.; Dept. 811-2, R. W. Harris Jr.

ALTUS AFB

Ten-year: Dept. 617-8, R. H. Steinberg Jr.

DYESS AFB

Ten-year: Dept. 618-3, W. R. Brewer.

LINCOLN AFB

Fifteen-year; Dept. 616, M. L. Cole, D. W. Grundstrom, Harry McKay.

PLATTSBURGH AFB

Twenty-year: Dept. 620-3, R. H. Stilwagen.

Ten-year: Dept. 620-7, W. A. Slagle.

VANDENBERG AFB

Ten-year: Dept. 576-0, Otis Tucker.

WALKER AFB

Fifteen-year: Dept. 619-7, W. C. Chandler.

Births

MAIN PLANT

WILLIAMS—Son, Clenel Jr., 7 lbs., born March 16 to Mr. and Mrs. Clenel Williams, Dept. 731-0.

LINCOLN AFB

GARCIA—Son, Kenneth Lee, 6 lbs., 7¾ oz., born April 16 to Mr. and Mrs. John Garcia, Dept. 616-2.

HILLER—Son, Mark Eldon, 6 lbs., 9 oz., born March 30 to Mr. and Mrs. John Hiller, Dept. 124-0.

WALKER AFB

CORP—Daughter, Rebecca Denice, 7 lbs., 6¾ oz., born April 15 to Mr. and Mrs. Michael Corp, Dept. 619-4.

Deaths

MAIN PLANT

KEMP—Fred S., Dept. 143-3. Died April 20. Survived by sister, Charlotte A. Sandborgh.

KUSHERA—Charles W., Dept. 551-4. Died April 20. Survived by wife, Dorothy Mae.

LAM—Roland Wayne, Dept. 603-0. April 28. Survived by wife, Eleanore; son, Wayne.

SCHILLING AFB

FRASIER—Robert C., Dept. 322-9. Died April 22. Survived by wife, Ann.

WARREN AFB

ARCHER—William, Dept. 611-9. Died April 22. Survived by wife, Josephine; two children.

GD/Astro Wins Plaque For Safety Movie As Country's Best

A bronze plaque for the country's best occupational safety film of the year has been presented to General Dynamics/Astronautics motion pictures and television (Dept. 124) by the National Committee on Films.

The award recognized the movie "Locked On," a "reliability" film stressing importance of individual employee in production of complex missile and space systems.

Shortly after its release last year, "Locked On" received top award in the "special film" field from the Industrial Film Producers Association.

In addition to the recent honor, the film will be shown at the National Safety Congress and Exposition, Chicago, in October.

TEEN-AGE DANCE DATE DELAYED

ARA Teen-Age Club's normal dance schedule will be interrupted May 19 due to use of ARA Clubhouse for an Astro Players presentation. No dance will be held on that date. Next regularly scheduled Teen-Age Club event is June 2.

General Dynamics NEWS

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GD/Astro Son Math Winner

For the second straight year an Astronautics son, Stuart W. Galley, 17, has swept top honors in the annual General Dynamics/Astronautics Honors Mathematics Contest.

The fifth annual event, staged April 28, drew 220 contestants from 38 area schools.

Young Galley, son of Mr. and Mrs. Robert Galley (he's an Astro engineer), was sweepstakes winner for the entire contest He was also top scorer among county schools, winning $100. As top scorer on his team he won a slide rule.

Awards were presented May 3 at Town and Country Hotel at the annual awards dinner. Susan Oliver, Hollywood actress, presented awards with an assist from Mortimer Rosenbaum, Astro's executive vice president.

Thomas Bailey was top city school individual scorer, while Robert Loya paced the independent schools.

Team winners were: Grossmont High School (county); Point Loma High School (city); and St. Augustine High School (independents).

Point Loma team members and sponsors received special awards as the highest scoring team in the competition. Team members were Thomas Bailey, Jonathan Price, Susan Brenner, Neal Gibson, Herbert Rowe and Ralph Kimball. Mrs. Irma Risty was team sponsor and Donald Giddings, principal.

At least one other Astro son, Arthur Wood Jr., (his father is contracts manager-space and special programs) was among top three students from each school. Young Wood attends San Miguel school.

CANTER APPOINTED TO MANAGER POST

Louis Canter has been appointed manager, library and information services, reporting to C. T. Newton, director of communication, by GD/Astronautics President J. R. Dempsey.

Louis Canter

Canter has served as chief librarian since joining GD/Astro in 1956. His appointment coincides with transfer of Astronautics library from engineering (Dept. 522-5) to communication (Dept. 128).

He holds a bachelor's degree from Trinity College, Hartford, Conn., and attended Syracuse University and the University of Maryland.

Before joining Astro, Canter held library posts in Hartford, the Engineering Societies Library, New York City, and Johns Hopkins University.

Advertising Head Named For GD/Astro

R. B. Salzberg has been appointed advertising project administrator at General Dynamics/Astronautics by C. T. Newton, director of communications.

Replacing Salzberg as production control administrator for communication department is C. H. Ogilvie.

GD/Astro 'Go Carters' Enter Roswell Race

WALKER AFB — Seven GD/Astro employees here are expected to be on the starting line May 13 when the third annual Bottomless Lakes Kart Races are held near Roswell, N.M.

This 120-mile race is expected to draw "go cart" drivers from a wide area to try their skills at traversing the eight-mile course.

Astro's Don Clem, Michael Corp, Don DeLude, Charles Rominger, Bob Stith, Roy Sullivan and Ed Wilkinson will compete. Some 36 trophies will go to top finishers in 10 classes.

Drama Club's First Presentation Scheduled For Five Night Run

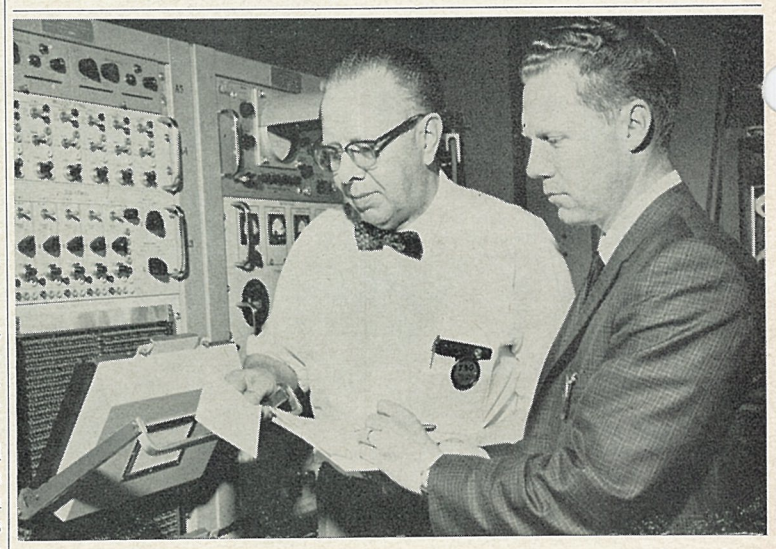
Two "firsts" will be recorded by Astro Players, ARA drama club, next week when their first show of the current season opens as the first major presentation in new ARA Clubhouse auditorium.

The play is "Wake Up Darling," a comedy directed by John Cone, and to be presented at 8:30 p.m., May 17, 18, 19, 25 and 26.

The play concerns a young advertising man and would-be playwright (Richard Elbe) and his wife (Gretchen Hart-Poindexter) who also has theatrical aspirations. When the wife lands a role in a musical written by a young Yale man (John Brigante), a comedy of errors develops.

Other Astro Players in the cast include Annabel Audet, Dixie Quesenberry, Bettye Eagon, Harvey Simpson, Genger Koger, W. A. Quill, Julius Rose and Nancy Shields.

Tickets for the show are now available at employee services outlets and from Astro Players members at $1 donation for adults and 50 cents for children.



IN ACTION—A. E. Hill, GD/Astro test equipment superintendent, holds quality assurance validation card, as John D. Stevens explains how data from sheaf of maintenance reports is consolidated on card for swift, efficient evaluation.

Card System Adopted to Check Test Equipment For GD/Astro

A unique quality assurance system for "at a glance" analysis of test equipment performance records will expand into General Dynamics/Astronautics electronics manufacturing operations this month.

For several months the program, combining the best features of several techniques for maintaining test equipment calibration and validation records, has been in use in Astro's Bldg. 4 standards laboratories (Dept. 561).

Thousands of test items—from simple multimeters to elaborate special-purpose test sets — are used daily at GD/Astro in all phases of space vehicle development and manufacture.

And each device is recalled at a specific interval for precision calibration and maintenance.

Early this year the test equipment standards section of quality assurance (Dept. 141-3) headed by John D. Stevens, assistant supervisor, developed and instituted a simple but effective reporting system. As each test device returns to the lab, calibration technicians complete a "Detailed Maintenance Report." Information from these reports is transferred to a numerically coded "Validation Log Card"—one for each item. Each card summarizes up to 30 visits to the lab (seven years of "life history" for the average unit).

Each time a unit enters the lab, a new line on its log card indicates whether it received routine or special maintenance, any component failures, its age and length of service, any mishandling or use under severe conditions, as well as information on standards and procedures used for its calibration.

To quality assurance engineers, patterns developing on the log cards will pinpoint repetitive failures. From these trends, they can assign accurate reliability and life expectancy factors.

"We feel this system of test equipment controls not only guarantees greater accuracy in testing operations, but will result in more economical equipment maintenance," said Stevens.

Inauguration of the program in GD/Astro's Bldg. 33 electronics manufacturing will more than double the quantity of test equipment covered by the quality assurance technique.

Daughter Seeking 'Miss Pacific Beach'

Carolyn Thompson, 16, daughter of M. C. Thompson, GD/Astro Dept. 311-2 at Plant 2 is a candidate for the "Miss Pacific Beach" title.

An El Cajon Valley high school student, Carolyn is one of seven girls competing for the honor, with the winner to be announced at coronation ceremonies May 11.

GD/Astro Meets Contract Dates

(Continued from Page 1)

Williams was responsible for work here, E. E. Barringer was chief of Team No. 1 at Offutt AFB. Both reported to Chana.

Supporting field forces were parallel functions within support field operations at San Diego. Engineers, technicians, administrative and planning groups coordinated their efforts directly through similar groups, greatly cutting response time through direct communication. Daily conferences at both locations and a unique central control center with two points of operation were key tools.

"By 'red flagging' critical areas and expediting through parallel levels, we were able to move quickly to solve problems," Chana said. "Too, we received expert and timely assistance from Air Force units involved to make our task easier."

Air Force commands taking part included the Ballistic Systems Division and its SATAF; San Bernardino Air Materiel Area; Strategic Air Command; and the Air Force Plant Representative's office at Astro.

Armed with kits of parts and equipment, Astro men and women set up operations at such points as the launch complexes, Squadron Maintenance Area, etc. Even technical writers were on hand to up-date technical manuals, etc.

As work was completed, exacting demonstrations were staged to prove compatability of old and new equipment. Astro conducted many of these demonstrations with SAC crews exercising "over the shoulder" rights as they did during installation phases.

Roger Lewis Maps Future At Shareholder Meeting

(Continued from Page 1)

have major new projects phasing in at an exact parallel to the phasing out of an old project.

"We have a substantial backlog of orders right now, amounting to $1.5 billion. By and large, our sales in most divisions for the balance of the year will remain at current levels. However, because of the phase out of certain of our major programs, particularly the B-58, I would estimate that our total sales for 1962 may be as much as 10 per cent below the 1961 peak.

"We are, of course, bidding on a number of new projects. Most of these are classified, but some are potentially very large.

"In the defense procurement area itself, traditional outlines are changing. There is a trend toward fewer numbers, but greater complexity, of end products. Future contracts may be smaller in terms of units, but the dollar amounts involved may be even larger, and the scientific and technical requirements will be much more demanding.

"Our concern is with products —the sales of our current products, the development of new ones to follow immediately, and particularly important, the development of products for the long-range future. We must be sure as we look down the road 10 to 15 years from now that we have good, substantial business coming up.

OUTLOOK TOLD — Roger Lewis, president of General Dynamics and now chairman of board, gave views last month on company future.

"As one step, all corporate headquarters activities have been consolidated in New York City for greater efficiency and for centralization of policy. Staffs are being trimmed down sharply, and controls tightened. We are reorganizing for much more effective communication between headquarters and the operating divisions. We are paying particular attention to cost control.

"We are trying to build a structure that will help us spot potential trouble long before it can become real. At the same time we are building toward a system that will encourage a flow of new ideas directed toward not only next year's requirements but those of a decade hence.

"This company, with its deep human resources and its inherent technical strength, is in an excellent competitive position. Proposals and concepts will be turned into contracts and products. Not all of them, to be sure, but enough of them to assure important growth in the future.

"We are confident that the hard work, talent and dedication of all the people in this company will insure its success . . ."

RIGHT WAY—Elizabeth Hennessey, GD/Electronics assembler, shows General Manager William Lawrence and J. H. Thompson, GD/E manager of manufacturing, correct method of assembling electronic units in continuing soldering qualification school.

'Do it Right!' Is Keynote Of Soldering Program

Importance of "doing it right the first time" is main theme of a stringent training program now under way in General Dynamics/Electronics at San Diego.

Over 150 electronic assemblers will receive intensive instruction in correct assembly and soldering procedures before conclusion of the current soldering qualification school.

Since the last of February, when classes began, 94 people have completed the 40-hour course. At least 50 more will go through the training before end of the series.

"This training is of utmost importance in maintaining the high quality of GD/Electronics products," emphasized William Lawrence, GD/Electronics general manager.

"We expect to see many long-range advantages, especially when we are evaluated by customers for new business. We can prove that we are able to meet the most rigid specifications."

Subjects covered range from wire stripping (removal of insulation) to instruction in care and handling of electronic components weighing an ounce or two and costing several hundred dollars apiece.

"These courses, based on GD/E specifications and GD/E customers' requirements, teach our assemblers to put together expensive electronic units perfect the first time," said J. H. Thompson, GD/Electronics manager of manufacturing. "This not only eliminates risk of rejects but saves thousands of dollars worth of costly components."

Assemblers are taught to properly mount electronic components on circuit boards and terminal boards; to assemble these components in an orderly manner according to engineering and specification requirements; to prepare and solder wires and leads to terminal posts; to solder wires to pins in plug connectors.

They are given instruction in safety regulations at the same time.

Visual aids such as color and sound films, posters illustrating methods and skills, informational hand-out materials, typical samples of electronic parts and materials are used.

Each student receives a soldering qualification card after he successfully passes a written test and completes a work project.

Instructors are Willadeane Ellis and Jack Wananabe, both of GD/Electronics, and L. E. Cook of GD/Convair educational services.

Similar training is now under way at GD/Astronautics, both at the main Kearny Mesa plant and at Plant 2. More than 1,000 will receive the same type of instruction in the continuing program at Astro.

GD/Electronics courses are coordinated under GD/Convair educational services, headed by H. W. Rubottom. Coordinator is William Goggin, assigned to GD/Electronics training programs.

Other courses now in progress for GD/Electronics include material handling, value control, quality improvement, and a college credit 8-week course in circuit analysis. Inspection training will start in the near future.

Contract Let For Four TBs

Air Force announced in Washington last week that a $2 million letter contract to convert four test B-58s to trainer-bomber status had been issued to General Dynamics/Fort Worth.

The $2 million was to be used for starting work on the first trainer bomber and purchasing long lead-time articles for conversion of the three remaining planes.

Addition of added window space and controls to second station—enabling either first or second-station crewman to fly the Hustler—are the main modifications.

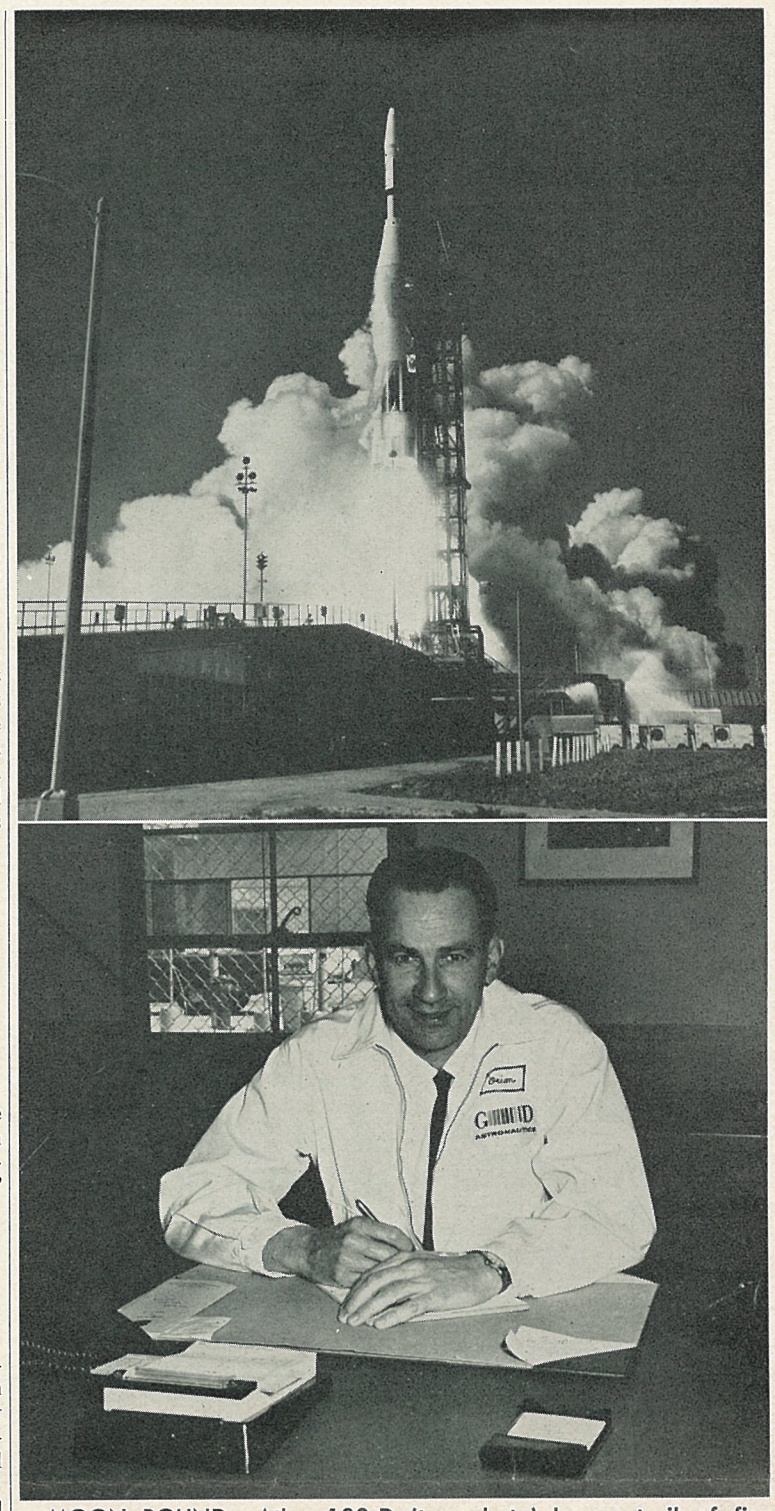
Four other test B-58s were converted to TBs earlier in the B-58 program. They are now being used at combat crew training schools at 43rd Bomb Wing and 305th Bomb Wing to train Hustler pilots.

Further information about the conversion program was to be made available following signing of a definitized contract.

Daingerfield Awards First 20-Year Pin

John Gluch, test engineer in the jet engine department, last month became the first employee at Daingerfield Division of General Dynamics/Pomona to receive a 20-year service pin.

Gluch joined the company in February, 1941, at San Diego as a draftsman, but resigned the same year to accept other employment. He rejoined the company in November, 1942, at the wartime Nashville Division, later transferring to Fort Worth and then to Daingerfield in 1945.



MOON BOUND—Atlas 133-D (top photo) leaves trail of fire and smoke as it clears Complex 12, Cape Canaveral, seconds after being launched by GD/Astro crew. Coupled with Agena B stage and Ranger 4 spacecraft, launch led to impact on back side of moon 64 hours and 231,000 miles later. Launch came April 23 with 730-pound gold and chrome-plated spacecraft impacting April 26. In lower photo is GD/Astronautics' Orion Reed, test conductor for launch, shown at Cape Canaveral.

GD/Convair Exhibit Attracts Six-Deep Crowd at Space Meet

Capabilities and products of General Dynamics/Convair suitable for use in the space era aroused high interest among delegates at what is termed one of the most concentrated gatherings of space experts from throughout the U. S.

Contacts which could prove valuable to the division as it competes for tasks involving space vehicles and hardware were established by GD/Convair representatives manning the division's booth at the recent Western Space Age Industries and Engineering Exposition and Conference in San Francisco.

First of its kind on the West Coast, the exposition provided an opportunity for GD/Convair to present its wares to government and military agencies, as well as the industry at large.

The booth, designed in GD/Convair communication department, was packed to the brim with actual specimens showing the division's advanced capabilities, with associated products already tried and tested.

Spectators, six deep, ringed the display, drawn by the attention-getter—a tension test machine which cracked like a .38-cal. pistol as it exerted the tremendous force necessary to pull apart specimens bonded by the GD/Convair-developed Scotchweld process.

The division's foremost manufacturing developments, using such materials as plastics, honeycomb, titanium, were featured, as well as Scotchweld bonding. A slice of an actual Convair jet transport—lounge with GD/Convair-designed seats, 990 interior panels complete with windows—converted the abstract into reality.

Noted officials present at the April 25-29 conference included the Hon. James E. Webb of Washington, D. C., administrator of NASA, who made the keynote address. Gov. Pat Brown of California and George P. Miller, chairman of the House Representatives committee on science and astronautics, also spoke.

Manning GD/Convair's booth throughout the exposition were Len Gaber of marketing and James Spurgeon, engineering design specialist. R. K. Gottschall, director of communication, headed a contingent of his department members coordinating details.

The booth is on display all this week at GD/Convair to give employees an opportunity to see it. It is set up in Bldg. 1 fabrication area adjacent to administrative offices.

ON DISPLAY—GD/Convair's booth at recent space age exposition in San Francisco attracted large crowds interested in division's advance capabilities.

Multi-Weapon Drops 'Good' Despite Weather

A half dozen drops over White Sands Missile Range, N. M., and several captive flights out of General Dynamics/Fort Worth have highlighted the B-58 multiple-weapon drop program.

Hustlers No. 38 and 42, both configured to carry additional bombs, are being used in the demonstrations which started early this year.

No. 38, which is stationed at Kirtland AFB with a GD/Fort Worth crew of about 30, is being used in actual drops over the White Sands facility.

Captive flights to determine flight characteristics of the Hustler with additional weapons are being conducted out of Fort Worth on No. 42.

The six drops were made at subsonic speeds. All were made at altitudes of from 36,000 to 40,000 feet except one, which was made at about a 1,000-foot level.

In each drop, only one of the additional weapons was unleashed on its target. Results were described as "generally good."

A total of about 27 such drops will be made to cover the speed and altitude spectrum of the B-58, and will include most positions. No more than two weapons will be dropped on any single mission.

Crews on these flights have included Fred Voorhees, pilot; Jack Denton and Fred Hewes, second station; and O. D. Lively and Ken Timpson, third station.

Meanwhile, two of the few remaining drops in the two component pod program were successfully carried out over White Sands.

A crew of Fred Voorhees, pilot; Jack Denton, second station; and Ken Timpson, third station, made a "good" high-altitude, Mach 2 tank drop in March. The same crew had made another successful high-altitude drop of an upper component earlier.

Hampered by bad weather, the program is expected to end soon. Two tank drops and a single upper component drop are scheduled.

Convair Badge Found in T-29

Mystery of a lost Consolidated Vultee Aircraft badge has been solved, some 10 years later.

A Consolidated employee's badge, marked Dept. 35, clock number 317051, turned up on the desk of Helen Hall, mail clerk in GD/Convair service parts, a few days ago.

A letter from Maj. Willis J. McNabb, USAF, chief of maintenance at Bolling AFB, explained that it had been found lodged under the floor panels of a T-29D at the base.

T-29s, navigational bombardier trainers, were built by Convair at San Diego for the Air Force during the early '50s.

QC MEETING HEARS POMONA SPEAKER

Dale R. Connor, supervisor of inspection services at General Dynamics/Pomona, was a speaker at the second annual "Inspection Workshop" conducted May 5 in Glendale by the Inspection Division of the Los Angeles Section of the American Society for Quality Control. Connor's subject was "Aids for Electronic Component Inspection."

Nurse Lorna Payne Heads Association

Lorna S. Payne, staff nurse at General Dynamics/Convair, has been elected president of the San Diego Industrial Nurses Association.

She previously had served on the board of directors and as a member of many committees of the association.

"Well, we're not fighting the war very hard."

Atlantic Flight Merits Award

The MacKay Trophy awarded annually for the "most meritorious flight of the year" will be presented to a B-58 crew for their history-making New York-to-Paris flight May 26, 1961.

Gen. Curtis LeMay, Air Force chief of staff, will present the award at an Armed Forces Day celebration at Andrews AFB, May 19. Receiving the trophy will be the crew that made the historic B-58 flight across the Atlantic in 3 hours, 19 minutes, 51 seconds—Lt. Col. W. R. Payne, pilot; Maj. W. L. Polhemus, bombardier-navigator; and Maj. R. R. Wagener, DSO.

The MacKay Trophy was established in 1912 by Clarence H. MacKay, an aviation pioneer in America. After his death the trophy was awarded by National Aeronautic Association.

GD/FW SON WINS ART SCHOLARSHIP

Joe Albert Bohn, son of J. G. Bohn, GD/FW Dept. 81, was named scholarship winner of the second annual Junior and Senior High School Art Show in Fort Worth.

The show is sponsored jointly by Fort Worth National Bank and Fort Worth Junior Chamber of Commerce.

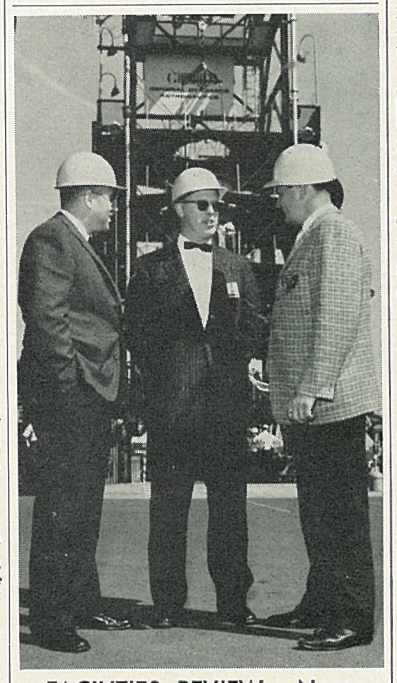
Bohn will receive, after graduation, a $250 scholarship to a university, college, or accredited art school of his choice, and an additional $250 award to purchase from him all of the original art work in his winning portfolio.

Bohn's work was selected from more than 1,000 entries from students of grades 9 through 12 in the Fort Worth Public Schools.

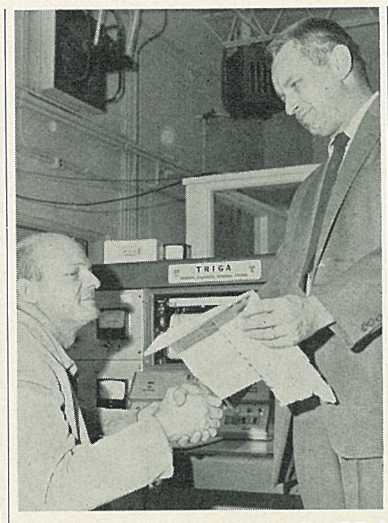
GD/Pomona Doctor Speaks on Cancer

Dr. Willard L. Smith, chief plant physician at General Dynamics/Pomona, was guest speaker at the April 26 meeting of the California Society of Professional Engineers.

His subject was "Cancer." The meeting was at the El Rancho Verde Country Club near Rialto.



FACILITIES REVIEW—Norman Crone, center, of NASA's Washington office, was recent visitor to GD/Astro. He is shown near Sycamore Canyon test facility with Ronald Rovenger, left, NASA plant representative at GD/Astro, and R. A. Raffesberger, Centaur chief project engineer for GSE and facilities. Crone was studying various available facilities.



LICENSED — Jack Pugh, GD/FW test engineer, receives license to operate General Atomic's Mark I TRIGA reactor from John R. Shoptaugh.

TEST ENGINEER TRIGA OPERATOR

Jack Pugh, General Dynamics/Fort Worth test engineer, was recently issued a two-year license to operate the Mark I TRIGA reactor, designed and built by General Atomic Division.

Pugh successfully completed a course of instruction to operate the reactor at Torrey Pines facility, San Diego.

On completion of the course, he was examined by Atomic Energy Commission. John R. Shoptaugh made the presentation.

Seven other engineers at GD/Fort Worth have received nuclear reactor operator's licenses. They are C. W. Dickerson, E. L. Jordan, J. B. McGuffin, Willie Park, J. T. Pancoast III, D. F. Ross, and E. J. Brunner.

Minot F-106s Busy in March

Convair-built F-106s based with the 5th Fighter-Interceptor Squadron, Minot, N. D., put in more flying time during the month of March than in any other month in the two years since their activation there.

D. W. St. Pierre, General Dynamics/Convair field service rep at the base, reports that F-106s broke 400 hours and set a goal of 500 hours for April.

In the two exercises called during the month, one by the 29th Air Division and the other by Minot Air Defense Sector, the 5th FIS flew 257 sorties, totaling 406 hours, 40 minutes in the air. The 5th had 224 radar intercept sorties for the month.

In a change of command, Col. James O. Beckwith, Minot Air Defense Sector commander, was due to leave Minot the first of May for reassignment to ADC Headquarters as systems integration and programs chief.

Fatigue Specialist Speaker in Dayton

Clarence R. Smith, design specialist in General Dynamics/Convair fatigue laboratories, will speak at a meeting at University of Dayton, Ohio, May 22.

The gathering is sponsored jointly by the Central and Southern Ohio Sections of the Society for Experimental Stress Analysis.

Smith's topic will be "Influence of Residual Stresses and Stiffness Factors on Fatigue Strength of Metals and Structures."

He gave the same lecture in late April at a state-wide engineering symposium at the Brigham Young University, Provo, Utah.

Paul Lewis Named Data Process Chief

Paul E. Lewis has been named chief of scientific data processing at General Dynamics/Astronautics by G. M. Robertson, director of management systems.

Lewis reports to C. E. Diesen, manager of data processing, and succeeds W. W. Varner who is now on special assignment reporting to Robertson.

They're in Business

Doll-Collecting Bug 'Catching' And GD/FW Guard Succumbs

J. L. Kleinecke, a veteran guard at GD/Fort Worth, gets his "biggest kicks" these days out of collecting dolls.

"Don't laugh," he said, "plenty of men have the bug. In fact, the biggest doll collector in the country is a man."

His wife started the family hobby about two years ago.

Kleinecke, probably like many other male collectors, got started by repairing, packing, mailing and generally handling the "business" end of the avocation.

"Now, we're co-partners," Mrs. Kleinecke said.

Included in the Kleinecke collection are dolls from Germany, France, Japan, Greece, Russia, and of course, all parts of the U. S.

The Italian dolls—many of them sent by Kathryn Kleinecke, a niece living in Rome—are perhaps the collection standout.

"We have several creche, or religious dolls, dating back to 1600 and 1700, the Italian Renaissance period," Kleinecke said.

Made of wood and terra cotta, the Italian dolls are authentically garbed. A single doll in the collection has been valued by an expert at $250.

"We're also real proud of our collection of six Russian dolls," Mrs. Kleinecke said. "They're hard to come by in this country."

The "American" collection includes several famous persons of the Wild West. A favorite is "Lemonade Lucy," wife of Rutherford B. Hayes, 19th president of the U. S.

The Kleineckes have sold some of their prized collection, with a single doll bringing as much as $125.

Dolls, according to the Kleineckes, are the third largest collection item.

HOBBY—J. L. Kleinecke, GD/Fort Worth guard, and wife collect dolls from all over world, like these valuable collector's items from Italy.

Pilots and Maintenance Crews Team To Score High in Rotational Firing

A joint team effort by F-102 pilots and maintenance men from Perrin AFB, Texas, scored highest percentage of effectiveness points since last fall's William Tell meet in a rotational firing exercise at Tyndall AFB, Fla., recently.

In the unit competition, the Perrin outfit achieved "one of the best team efforts ever witnessed," in the words of the Weapons Center project officer.

Six pilots, 27 maintenance personnel of the 3555th Fighter Training Wing participated. Strong support from the maintenance crew was credited for the high score.

They rescued what would have been an automatic loss of 1,000 points when one aircraft developed starter trouble, changing it in time for the next mission.

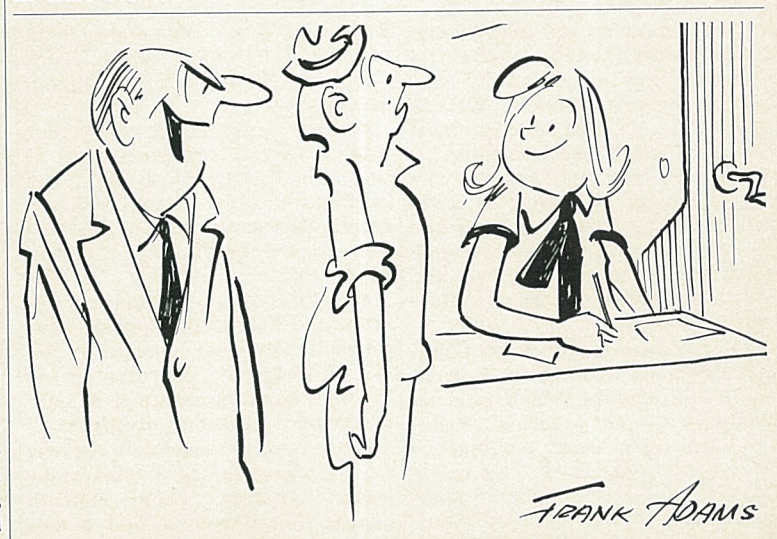
This was the first rotational firing mission in which the 3556th Flying Training Squadron was directly responsible for furnishing pilots and coordinating deployment.

General Dynamics/Convair field service representatives based in support of Convair-built interceptors at Perrin are L. D. Harris and W. R. Boughey.

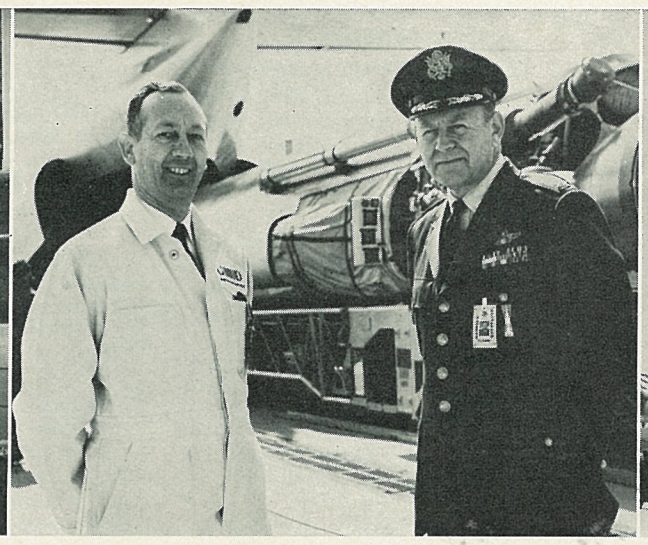
Jet 990s Fly First Service Into Africa

Convair 990 jet airliners ventured into a new part of the globe last week as they winged into Africa on regular scheduled runs.

Swissair began new 990 service connecting Zurich, Lisbon, and Accra, capital of Ghana, last Wednesday (May 2).



"He starts to work a week from Friday . . . Don't just sit there, Miss Thompson . . . Get to work on his payroll deductions!"



AROUND THE BASES—At center are W. H. Dunn, GD/Astro operations manager at Plattsburgh AFB, and Col. Calvin W. Fite Jr., SATAF commander, pictured as first Atlas missile arrived April 6. At right are interested spectators at unloading from C-133B transport. In photo at left, Major F. O. von Dorn, Site Activation Task Force, deputy for communications, left, and H. R. Massie, GD/Astro engineer, discuss Wide Area Telephone Service with Operator Pat Luechtefeld, at Walker AFB.

Walker Adopts New Distance Phone System

WALKER AFB — General Dynamics/Astronautics personnel here have joined other members of the Atlas Site Activation Task Force (SATAF) here in utilizing a new and faster means of long distance telephone service.

Known as Wide Area Telephone Service, called WATS, the service allows unlimited long distance calls within a fixed geographic area for a regular monthly fee.

Sixteen states including Arizona, Arkansas, California, Colorado, Idaho, Iowa, Kansas, Louisiana, Missouri, Nebraska, Nevada, Oklahoma, South Dakota, Texas, Utah and Wyoming are included in the system.

Expected to save some $1,200 per month in charges, the service was planned and arranged by Maj. F. O. von Dorn of the SATAF office here and H. R. Massie, GD/Astro manufacturing engineer.

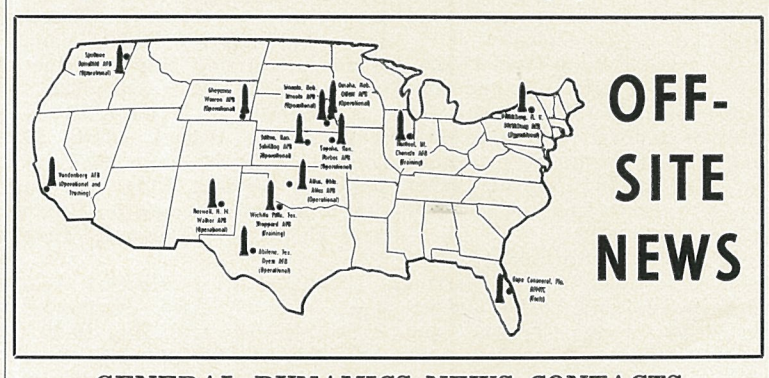
A system similar to this has been installed and is in use at all GD/Astro "hard" bases with the exception of Schilling AFB. Naturally, the areas in which calls may be made vary with the location.

Approximately 50 Atlas operation telephones here are connected to the service with Pat Luechtefeld as Astro's WATS operator.

"In our business, we must be in constant touch with other Atlas bases as well as the factory in San Diego," Rex Ubben, Astro operations manager here, said. "This system will keep us in close communication for a lower dollar cost."

At present the system is for outgoing calls only.

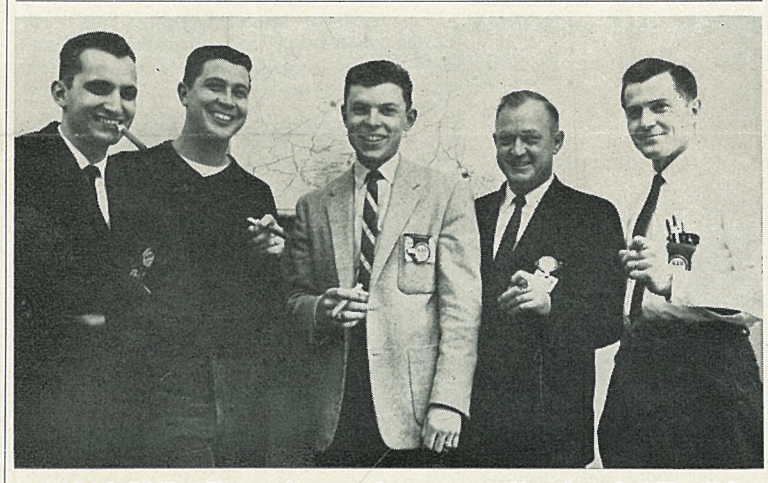
MAPLE SUGAR — From mid-March through April maple groves near Plattsburgh, N.Y. sprout buckets for traditional sap gathering time. Walter Gault, Astro photographer from home plant, was interested in contents of bucket in shot above.



OFF-SITE NEWS

GENERAL DYNAMICS NEWS CONTACTS

AFMTC—P. C. Brown, ext. 3-4741.
ALTUS—A. P. Dawkins, ext. 7141.
DYESS—G. D. Higgins III, ext. 8370.
EDWARDS RS—Chris Marques, ext. 27.
LINCOLN—Maxine Utley, ext. 412.
PLATTSBURGH—Elly FitzPatrick, ext. 6281.
SCHILLING—J. E. Riley, ext. 213.
SHEPPARD—Steve Delbridge, ext. 8243.
VANDENBERG—Lucy Signorelli, ext. 8-5046.
WALKER—Rod Bricker, ext. 603.
WARREN—Bill Jack, 77-466.



PAPAS FIVE—Five safety section men at Plattsburgh AFB all became fathers within two month period. Enjoying cigars are, from left, Ken Emery, Ken Crawford, Jerry Metzger, Rex Andrews and Cliff Clickner.

Fathers Celebrate Four Girls and Boy

PLATTSBURGH, AFB — If cigar sales soared over the past two months, GD/Astro's safety section members were a contributing factor.

All five members of the section became fathers in that period!

Four girls and one boy were born to the group. Father of a boy is Ken Crawford, safety technician. Rex Andrews, safety engineer, and Jerry Metzger, Cliff Clickner and Ken Emery, all safety technicians, fathered girls.

CHILDREN MODEL EASTER FASHIONS

SCHILLING AFB — Children (ages 3 to 10) took the spotlight here recently when the GD/Astro Wives' Club held an "Easter Parade" fashion show attended by 139 at the Officers' Club.

Models were Barbara Pimental, Christie Pimental, Teresa Ann Lee, Kathy Landers, Martha Landers, Charles Lynn, Robert Lloyd, and Ralph Vernor. Mrs. Frank May was narrator.

Door prizes went to Mmes. Joseph Pimental, Floyd Markussen, G. W. Couch, Neale Schryer and David Rogers. Hostesses were Mmes. Joe Landers, N. B. Lee, Ernest Lloyd and Charles Lynn. Mrs. Ted Heaton was named publicity chairman for the group.

Astro Wives Model Styles

LINCOLN AFB — Some 150 Astro Wives here were on hand recently for a "Spring Bouquet of Fashion" event staged in the Lincoln Telephone and Telegraph Co. Auditorium.

Planning chairman for the event was Mrs. Leon Van Patten with Mrs. Joseph Buglewicz as co-chairman. Committee members included Mmes. John Lorenzen, Lee Stouse, Homer Smith, Vernon Pippin, Harry Morgan, James McGarry and Charles Foster. Mrs. Richard Adams coached models, while Mrs. Les Stockton supervised coiffures and Mrs. Lee Stouse handled make-up.

Models included Mmes. Van Patten, Paul Rutherford, E. J. Jeffers, Louis Wirff, Vance Walsh, Bruce Beebe and Joy Stockton.

Plattsburgh Wives Seat Officer Slate

PLATTSBURGH AFB—Syvilla Gilmore, president, headed a new slate of officers which was seated at a special meeting May 1 of Astro Wives Club here.

Others taking office included Johnnie Chambliss, vice president, Joan Halford, recording secretary, Pauline Guntlow, corresponding secretary, and Loreli Snyder, treasurer.

Plattsburgh Crowds Turn Out To Watch First Atlas Arrival

PLATTSBURGH AFB — Sixty local city and county officials were special guests here April 16 for a look at the Atlas missile and also a close look at underground silo launch complexes being activated by GD/Astro forces.

Led by Plattsburgh Mayor John J. Tyrell, the group gathered at the base Officers' Club for a briefing by Col. Winton R. Close, commander, 820th Air Division; Col. Calvin W. Fite Jr., SATAF commander; and Col. Richard Beck, commander, 556th SMS.

Next came a bus trip to the Squadron Maintenance Area where the group viewed the first Atlas assigned to the base and heard a talk on the Atlas weapon system by W. H. Dunn, GD/Astro operations manager.

Next came visits to launch complexes 7, 8 and 9 near Chazy Lake, Ellenburg and Moores, N. Y.

Following a return to the base, visitors were guests at a dinner sponsored by Col. Close and base Strategic Air Command units.

The initial Atlas missile assigned to this base arrived April 6 after a flight of about eight hours from the main plant at San Diego. Chester O. Hill of GD/Astro directed the crews that unloaded the missile in less than two hours.

Technical Orders Conference Subject

SCHILLING AFB — This GD/Astro installation has played host for over two weeks to a joint Central Technical Order Change Unit.

Composed of GD/Astro and Air Force representatives, the conference reviewed technical order changes developed here and at Vandenberg AFB, Lincoln AFB and Altus AFB for incorporation into technical orders common to all "F" series bases.

Maj. Bill E. Masure represented SAC; Maj. Walter E. Brown was an Air Force Logistics Command representative; and W. E. Barnes, Dept. 324-2 engineer, was GD/Astro representative.

GD/Astro Daughter Wins Math Contest

ALTUS AFB — Linda Russell, 14, daughter of GD/Astro's C. C. Russell here, recently finished first in an Oklahoma-wide scholastic contest in mathematics staged at Oklahoma State University, Stillwater.

The contest drew 318 high and junior high school students who took part in competition in chemistry, physics, mathematics and mechanical drawing.

A freshman at St. Mary's High, Lawton, Linda has attained a 94 average for her first year of high school work.

Altus Drivers Hold Record

ALTUS AFB — General Dynamics/Astronautics drivers here on May 1 observed "Five Million Mile" day in honor of operating company vehicles more than 5,000,000 miles without a fatality or personal injury.

Of a total of 32 accidents, only two involved damage of more than $500. Astro drivers were not cited.

Vehicle operations here have extended through southwestern Oklahoma and into northern Texas and have involved driving in all types of weather, including heavy ice and sleet conditions.

Ray H. Page, Oklahoma Department of Public Safety commissioner, praised the record in a wire to J. N. McPheeters, GD/Astro operations manager.

"For your drivers to have amassed five million vehicular miles in southwest Oklahoma with no personal injury or fatal accidents and with very few minor property damage accidents is a tremendous feat. We wish to commend you and all others who are responsible for this wonderful traffic safety record," Page said.

PROUD TRIO—Astro's Altus AFB transportation function has operated more than five million miles in vehicles without an injury or fatality. This trio shows off sign marking occasion. From left, John Green, transportation supervisor, Horace Norcross, driver, and Harding Hensley, assistant supervisor.

Blue Ribbon Winners Selected In Joint ARA-CRA Rose Show

Commissioners Gene Zimmerman (CRA) and Everett Henderson (ARA) have announced blue ribbon winners in the joint ARA-CRA Spring Rose Show last month.

"Best of Show" was an entry by G. L. Scheibel, GD/Convair Dept. 180.

Receiving ribbons for their single rose displays were CRA members Scheibel (2); Mrs. Scheibel; Zimmerman, Dept. 401-5; John Jodka (2), Dept. 91; three-rose class were Evelyn Finley, Dept. 14; and Lora Lee Young, Dept. 400.

From GD/Astro winners in this class were Rose Sorenson, Dept. 756-3; Mildred Clark, Dept. 343-6; W. E. McVay; and Carolyn J. Buman, Dept. 597-1.

GD/Convair winners in the three-rose class were Evelyne Thrall, Dept. 3-2; Gloria Jodka (4); John Jodka (3); Felix White, Dept. 115, and Mrs. White (2). ARA winners were Rose Sorenson (2); Mildred Clark; Phyllis Files, Dept. 951-3; and Charles Ulrey, Dept. 193.

Winning in arrangements were Convair folk Mrs. Harold Inman (2), Dept. 171; Jean Henderson, Dept. 16; and Margaret Boyd. Mrs. W. E. McVay was an Astro winner.

GD/Astro entrants swept the corsage class with ribbons going to Carolyn Buman; Mrs. Richard Freedman, Dept. 535-9; and Yvonne B. McMillon, Dept. 342-2.

For children 5-11 years old, the blue ribbon went to Convair daughter Christine Ann Scheibel, while Connie Boyle, daughter of Mr. and Mrs. C. T. Boyle, GD/Astro Dept. 350, won in the 12-16 year class.

Astro, Convair Teams Leading In Volleyball

Support Documentation and Spacemen were running ahead of the pack after four weeks of play in the IRC volleyball tourney.

Made up of Astro players, Support Documentation was undefeated in the Wednesday League while Spacemen, a GD/Convair team, had a clean slate for the Friday loop.

Reliables of Astro dropped out of the Wednesday League to leave five teams playing. In the Friday League, Design, also Astro, was replaced by Dept. 101.

Last games played the final weeks in April saw Convair Engineers downing Reliables, 15-2, 15-3; City Engineers over the Hounds, 15-8, 15-9; Support Documentation winning from Astronets, 15-8, 15-1.

The following week City Engineers beat Convair Engineers, 15-8, 15-12; Astronets dropped a drawn-out match with the Hounds, 13-15, 16-14, 16-14. Support Documentation took an automatic win from Reliables.

Friday League results kept Spacemen in lead spot with wins over Park and Recreation, 15-1, 15-2, and Dept. 101, 15-2, 15-7.

Project Support defeated Dept. 101 in their first game in the league, 15-8, 15-9, and went on the next week to win from Park and Recreation, 15-9, 15-10.

All games are played at Muni Gym, Balboa Park, 7:30 p.m. on Friday nights; 7 and 8 p.m. on Wednesdays. Spectators are welcomed.

Archaeology Club Digs at New Site

An excavating party May 13 and business meeting May 23 are on the agenda for ARA Archaeology Club.

The group recently began excavation of a new site near Poway, and the first one-foot test pit yielded good specimens of arrow heads, pottery and bone chips. Work on this site will continue May 13.

The group's regular meeting at 7:30 p.m., May 23 in ARA Clubhouse will feature three films.

Motorcyclists Slate Benefit Run May 13

A benefit road run will be sponsored May 13 by Astro Motors, ARA motorcycle club, beginning and ending at Picnic Shelter No. 1 in the ARA Area.

Cyclists will get under way between 10 and 11 a.m., with deadline for finishing the course set at 4 p.m.

An entry fee of $1 per person will benefit an Astro employee recently injured in a highway accident.

Saturday Salvage Schedule Listed

Saturday schedule at salvage yards at both GD/Convair and GD/Astronautics sites for the next four weeks is:

GD/Convair—May 12, 26.

GD/Astronautics — May 19, June 2.

Yards are open to employee sales on an alternating Saturday schedule from 8 a.m. until noon.

Speakers Plan Birthday Party

Dynamics Toastmasters will observe their tenth anniversary at a May 24 dinner in the Tower Room of Stardust Motor Hotel, Mission Valley.

District and area officers as well as top-level executives from GD/Convair, GD/Electronics, and GD/Astronautics have been invited to the stag affair, for members only.

Reservations at $3.75 each must be made before May 22, warned M. L. Sweeney, program committee chairman. He may be contacted through Plant 1, ext. 1687, for ticket information.

Sweeney will act as toastmaster; J. L. Carr, topicmaster. Speakers will be Clark Hoskins, Tim Turner, Ken Samples, Fred Stevens. General evaluator will be C. C. Campbell.

Social hour will start at 6 p.m. with dinner following.

Following recent elections, newly-installed officers of Toastmaster Club 457 are: J. L. Williamson, president; Samples, administrative vice president; T. R. East, education vice president; A. R. Brunner, secretary; Stevens, treasurer; U. C. Sammons, sergeant at arms.

Regular dinner meetings are held weekly on Thursday evenings.

Henderson to Hold Garden Open House

An open house for garden enthusiasts will be held Sunday (May 13) at the home of ARA Commissioner and Mrs. Everett Henderson, 3503 Yosemite St., Pacific Beach.

Henderson has invited General Dynamics employees to "drop in" between 9 a.m. and 5 p.m. to view more than 1,000 orchid blooms, including several prize-winning plants.

Stamp Collectors Plan Trade Night

"Traders' Night" will be featured at a meeting of ARA Stamp Club slated for 7:30 p.m., tomorrow (May 10) in ARA Clubhouse.

At the previous meeting the group viewed a topical display presented by Mr. and Mrs. A. Hurlich. Based on a "fine arts" theme, this included over 1,000 stamps on subjects such as art, theatrical stars, music and musicians.

A club effort headed by Jim Schofield and Jim Rowley is now under way to display several frames of stamps at Del Mar Fair next month.

ARA Stamp Club meets twice monthly, alternating trading and auction sessions. A special club unit accommodates youngsters interested in stamp collecting.

Astro Motors Calls Competitor Meeting

A meeting of riders interested in competition will be held by Astro Motors at 7:30 p.m., May 16 in ARA Clubhouse.

Paul Shannon, ARA commissioner, has urged a full attendance. Additional information for night shift employees is available by calling him at BR-3-4527.

Food and Drink Stand Opened In Picnic Area

Summertime is picnic time for GD/Astro folk, and May marks opening of ARA Area concession stand providing food and drink for weekend picnics.

The stand is open from 11 a.m. until dusk on Saturdays and Sundays throughout the summer (May-September). Groups planning special events may arrange for its opening during other hours by contacting the chief of employee services.

On sale at low prices are draft beer, soft drinks, snow cones, hot dogs, hamburgers, coffee and assorted sundries. Charcoal and barbecue starter are also available.

The stand also serves as a checkout point for horseshoes, volley balls, shuffleboard and softball equipment, and washer pitch units for use in the area.

The general picnic area is open daily from 7 a.m. until dusk, with all facilities available on a first-come, first-served basis.

Memberships Open to Skiers

Time is running out for joining water ski activities at GD/Astro for the summer months, with membership in the ARA-sponsored group available only twice more.

Next date for accepting memberships will be a 7:30 p.m. monthly meeting tonight (May 9) at ARA Clubhouse. Final applications will be accepted during June.

Water ski activities are currently being held on Saturday and Sunday of each week at Crown Point and throughout the regular week after work at various Mission Bay points. Club membership is required for participation.

"We would like to round out our club rolls as soon as possible and welcome both beginning and experienced skiers," said Commissioner Bill Johnson.

Explorers Will See Movie on Field Trip

Memories of an outdoor weekend will be revived at a meeting of ARA Explorers Club at 7:30 p.m., May 17 in ARA Clubhouse, when movies taken on a recent field trip will be shown.

On the May 19-20 weekend, Explorers will travel to Baja California to search for Indian relics.

Films slated for the meeting were taken during a club trip to Tumco near the Arizona border. More than 50 members and guests participated in exploring the once-prosperous mining town, and collecting geodes at a nearby deposit.

62 Members Attend Bridge Club Session

An all-time high of 62 members attended the final April meeting of ARA Bridge Club, while attendance at the weekly sessions averaged over 50 throughout the month.

The group, now meeting in ARA Clubhouse each Thursday from 7:30 to 10:30 p.m., will hold master point events May 10, 24.

Art Saastad, ARA commissioner, has invited all GD/Astro bridge fans to take part. Partners are available for single players.

ARA Calendar

(GD / Astronautics Recreation Association has some 40 activities in operation for employees. For information, call ARA Headquarters, ext. 1111.)

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ASTRO NOTES — Chorus rehearses 7:30 p.m., Mondays, ARA Clubhouse.

ASTRO PLAYERS — Comedy "Wake Up Darling," 8:30 p.m. May 17, 18, 19, 25, 26, ARA Clubhouse. Tickets 50¢ and $1 at employee services outlets.

BOWLING — Summer leagues at Clairemont, Parkway, Poway, and Frontier Bowls open later this month. Applications at employee services outlets.

CHARM SCHOOL — Self-improvement for women. Classes 7-9 p.m. starting May 15 (Tuesday series) and May 17 (Thursday). Teen-agers 5:15-7:15 p.m., Mondays, starting May 14. Nine-week, 18-hour series costs $25.

DISCOUNT TICKETS — World's Fair tickets, adults $6 (regular $10), children $3.75 at employee services, Bldg. 8. Also tickets at 20% discount for Circle Arts Theatre's "Oklahoma," June 3.

EXPLORERS — Meeting 7:30 p.m., May 17, ARA Clubhouse. Baja California trip, May 19-20.

GROUP TRAVEL — Big Bear Trip, June 15-17. Bus, meals and lodging, $25 per person. Ten-day World's Fair trip July 21-30 with transportation, sight-seeing, Fair admission, accommodations, $242 each.

MOTORCYCLES—Benefit road run starts 10 a.m., May 13, ARA Area. Entry fee $1.

RADIO CLUB — (First shift) Meeting 7:30 p.m. today (May 9), ARA Clubhouse.

ROCKHOUNDS—Meeting 7:30 p.m., May 10, ARA Clubhouse. Speaker on desert and mountain survival.

SKIN DIVING — San Diego Diving Council spearfishing meet, 9 a.m., May 20, La Jolla Caves. Open to all divers.

STAMPS—Trading session at meeting, 7:30 p.m., tomorrow (May 10), ARA Clubhouse.

WATER SKI — Memberships accepted at meeting, 7:30 p.m., tonight (May 9), ARA Clubhouse.

HI-FI/MUSIC CLUB HOLDS RECITAL

First in a series of recitals planned by ARA Hi-Fi/Music Club was held last month at the home of Mr. and Mrs. Ben Penners.

The program consisted of describing the electronic organ, its operation, and musical applications, with selections on the Hammond organ by Penners and his daughter, Joanne, a State College music major.

A comparative recital based on the Wurlitzer organ will be held at the home of Matt Bayer, May 18. GD/Astro employees wishing to attend may contact Ben LaChance, ARA commissioner, ext. 2324, or Peg Lewis, ext. 4013.

Hi-Fi/Music Club's next regular meeting will be at 7:30 p.m., May 23 in CRA Clubhouse. A. J. Woodington will speak on the relation of measuring equipment to high fidelity.

Spearfish Contest Ahead For Divers

Members of Astro Divers, ARA skin diving club, will participate in a spearfishing contest to be sponsored by San Diego Diving Council at La Jolla Caves at 9 a.m., May 20.

The event is open to all diving enthusiasts, whether or not they are affiliated with a club.

At Astro Divers' recent meeting, guest speaker Jim Stewart of Scripps Institution of Oceanography displayed movies of various underwater subjects, including shark activity and erosion studies off Baja California.

Also at this session, member Joe Walker received the club trophy for the largest lobster taken during the 1961-62 season.

Schneider, Sicard One, Two in Shoot

Roland Schneider led Harold Sicard 293 to 291 in master class .22 Police Course matches held by ARA Pistol Club late last month.

Angrim Carlson with 275 trailed Harold Jensen's 278 in expert class while Bill Winchell, 271, led John Bennett, 255, among the sharpshooters.

Marksman class was won by Reed White with 239, while Ila Tescher fired 204 for second.

Top finishers in a .22 Short National match were Ronnie Legg, 277; Ralph Sanderlin, 274; and Jensen, 270.

Astro's pistol team came out second best in the first ARA-CRA match, April 22.

They fired 1,127, ten points behind Convair's winning team.

Bus-Air Seattle Trip Offered at Bargain To Astro Employees

Travel, sight-seeing tours, and hotel accommodations during a ten-day trip to the Seattle World's Fair are offered by ARA in a bargain package for GD/Astro employees and families.

Departing San Diego by bus July 21, the trip includes overnight stops and sight-seeing at Hearst Castle, San Francisco, Eureka and Salem.

After four nights in Seattle for the Fair (admission included in package price), the group will return to San Diego by air July 30.

Total cost of the trip is $242 per person. Reservations ($50 deposit required) are now being taken at ARA Clubhouse office between 7:45 a.m. and 5:30 p.m. Space limitations make early reservations advisable.

All GD/Astro employees and dependents are eligible.

Rockhounds to Hear Survival Lecture

Lt. Cdr. R. D. Chilton of the Navy Survival School at North Island NAS will discuss desert and mountain survival at a meeting of ARA Rockhounds, 7:30 p.m., May 10 in ARA Clubhouse.

The group will complete plans for a one-day field trip and picnic at the oyster beds at that time.

Qualified members will have additional time to use lapidary equipment because of expanded hours of operation for the clubhouse workshop.

Open hours now include Tuesdays, Wednesdays, Fridays and first and third Thursdays, 7-9 p.m.; first and third Saturdays, 9:30 a.m.-3:30 p.m.; and (for wives) Tuesdays and Thursdays, 9:30-11:30 a.m.

Rockhounds' April field trip took them to Rainbow Ridge to collect rainbow jasp-agate, and to Boron for a gem show and collection of specimens as guests of the Mojave Mineralogical Society.

Astro Trailer Club Has Weekend Outing

Astro Trailer Club last month celebrated its third anniversary in operation with a weekend outing to Ocotillo Wells. Nearly 50 members in 13 trailers took part.

Next club activity is slated May 12 and 13 at Live Oak Park.

This will include the traditional Saturday evening potluck, and ladies will be feted at a Mother's Day breakfast prepared by male members of the club Sunday.

Additional information on Trailer Club is available from Steve Clark, Plant 2 ext. 1143.

PHOTO COMPETITION SET FOR MAY 20

Astro Lens, ARA camera club, will conduct its second quarterly photo competition of the year at its meeting May 20, 7:30 p.m., in Photo Arts Bldg., Balboa Park. Black and white prints, and color slides are eligible.

Summer Dance Program Set

Summer ballroom dancing sessions at GD/Astro get under way May 21 at ARA Clubhouse.

Ludy Moeller, recently named ARA dance commissioner, has announced plans for conducting both beginning and intermediate sessions on a single night—Monday—rather than on two nights as in the past.

Beginners meet from 7 until 8:30 and intermediates from 8:30 to 10 p.m. each Monday for a period of 12 weeks. A joint "refreshment break" will be shared between sessions.

Taught by professional instructors, the ARA-sponsored sessions are aimed at teaching all of the currently popular steps. Dancers and non-dancers will be welcomed in the beginner's classes, while the intermediate classes are reserved for those who have had formal instruction in the past year.

Cost per student is $9 payable at one of the first two classes. Now students will be accepted only during the first two (May 21 and 28) classes.

The program is designed primarily for couples, but singles will be accepted in equal numbers, although no guarantee of providing partners is made. No advance registration is necessary.

Information on the program may be obtained by contacting ARA, ext. 1111.

40 Wives Bowl In Winter Loop

Ten teams and 40 bowlers participated in Astro Wives winter bowling season concluding late last month.

Final team standings found the Dreamers in top spot with a high series of 1,802. The Astro Loafers scored a 1,718 series for second, while Crazy Curves finished third with 1,662.

Season high series, including handicap, was bowled by Boomerangs with 2,322, while Dreamers scored 2,315. Alley Cats led with a high game, with handicap, of 835, and Boomerangs bowled 827.

Ethel Baker's 644 was high for individual series, while Barbara Mahaffey, bowling director, tallied 636.

Individual high game was won by Mary Smith with 247, and Jean Larson rolled a second-place 246.

Members of the league-winning Dreamers were Yvonne Keith, Ruth Easler, Lea Spivey and Gloria Campbell. Meg Greenwald was named "most improved bowler."

Sports & Recreation

Red Carpet For Novices Promised in Keg Loops

Emphasis will be on beginners this summer as ARA-sponsored bowling leagues swing into action between May 21 and June 21 at four locations.

"We hope to attract a maximum number of new bowlers this summer who will establish handicaps for our winter leagues," said ARA Commissioner Jack Boyle. "Therefore, we have scheduled many low-handicap leagues, while continuing to operate higher leagues for our regular bowlers."

At Clairemont Bowl 700 mixed handicap leagues will be operated every night, Monday through Friday. An 800 Classic Scratch league will operate on Monday; a 760 Major-Minor Scratch on Tuesday; and both 750 Men's Scratch and 725 Men's Handicap on Thursday.

Parkway Bowl will feature 700 Mixed Handicap leagues on Tuesday and Thursday.

Another 700 Mixed Handicap loop will roll Thursdays at Poway Bowl.

Frontier Bowl will feature ARA-sponsored 700 Mixed Handicap leagues on Monday and Friday.

Additional leagues of different types will be operated at these or other locations, if interest warrants. Swing shift leagues will also be sponsored when and where interest is shown.

Assisting Boyle with administration of the bowling program are Directors Bob Crafton (Poway), Chuck Quinton (Frontier), Larry Hartshorn (Escondido), George Peck (junior and bantam, Clairemont), Vic Salgado and Tony Minniti (Clairemont), Lee Kite (swing shift), and Gil Hutter (Parkway).

Bowlers Signing Up For Summer Loops

Applications for ARA's summer bowling leagues scheduled to start in mid-May at both Clairemont and Parkway Bowls are available at employee services, Bldg. 8.

Additional information on the bowling program is available from Dixie, ext. 1111.

100 Cars Finish 215-Mile Route In Atlas Rally

More than 100 cars entered ARA Sports Car Club's Atlas Rally IV late last month, with 90 finishing the circuitous 215-mile route between San Diego and Oceanside.

Sports Car Club members administered the event, with an assist from members of ARA Radio Club who handled rally communication by operating 10 mobile units and a central control station in the ARA Clubhouse throughout the day.

No protests were registered at any time during the rally. George Lahey was rallymaster.

Trophies were awarded to 10 top finishers in both navigational and seat-of-pants classes, and to 12 best-of-marque finishers.

Dave and Jo Ann Stephens, Jim and Joan McCrae handled registration and scoring, while George, Marge, David and Danny Lahey, Dick and Betty Keehn made up the start crew.

Jack and Jean Stevens comprised the protest committee, and the follow-up car was driven by Elmer Smith and Mildred Bush.

At check points were ARA Commissioner Marion Carter, Kitty Kessner, Earl Watson, Carol Eardley, Earl and Peggy Potter, "Judge" and Jeff Pennick, Jim and Pat Howard, Bill and Nell Lester, Jim Cochran; Art, Art Jr., and Gerry Wrightson; George Ducher, John Janionis, Bob Siler, Teri Calvert, Jean Poshley, Paul and Bobby Pound and Ed Willette.

Also assisting were Terry and Nancy Starr, Mort and Jeff Rosenbaum, Evelyn Handy, Bill Meek, Rod and Elnora Hutchinson, Ed, Esther, Margia and Janey Yeaton, Mike Cunningham, Chuck and Joyce DeMund, and Kent Perry.

GROSS 73 IS LOW FOR BONITA GOLF

Next ARA golf sweepstakes will be played Bonita May 19-20 with ARA Headquarters, ext. 1111, now accepting entries.

Alex Bezverkov led low gross contenders in the 0-14 handicap bracket of ARA's April event with 73, also at Bonita.

Mac McCord and J. Ross tied for runner-up with 75s, and Ken Crotz shot 76. Low net in this handicap class was a 65 by Ray Mendoza, while Pat Bourgeois and Bob Markey scored 67s, and J. Jones and H. Richards, 68s.

In the 15-21 flight, D. Suchucki scored 75, Frank DeGuide, 79, and T. Embree, 83, for low gross, while D. Campbell had low net with 66.

E. E. Irwin was next among low net shooters with 67, and Larry Green, Chuck Walton, Bill Ruzich, R. Campbell and Al Phenninghausen shot 68s.

Low gross scorers in the 22-32 bracket were D. A. Scott, 87, Clyde Burkhart, 93, and Jack Friedman, 94. Low nets here went to Larry Broussard, 65, Tom Paddock, 68, and Bill Shiba, 71.

Winners may receive golf balls by calling for them at employee services, Bldg. 8, between 11 a.m. and 1 p.m., or 4:30-5:30 p.m.

Golfer Sam Braun Aces 219-Yard Hole

After 30 years of golf Sam Braun of GD/Astro quality control has scored a hole-in-one.

Braun aced the 219-yard seventh hole on the west course at Singing Hills with a two-wood shot, April 28. His playing companions were Ed Hutchins and W. S. Williamson.

BOWLING WIVES—In top photo, receiving trophies at conclusion of Astro Wives winter bowling were Yvonne Keith, Ruth Easler, Lea Spivey (members of winning team), Ethel Baker (high series), Gloria Campbell (team member), Meg Greenwald (most improved bowler), and Mary Smith (high game). Below are runners-up, Jean Larson (second high game), Lola Kurch and Judy Bingham (second place team members), Barbara Mahaffey, bowling director (second high series), and team members Lela Jennings, Ethel Baker.

WELCOME CUP—Win Callard, retiring president of Astro Wives Auxiliary, seated, pours for Martha Buchan, incoming president, as Bonnie Silver, first vice president, and Audrey White, secretary, look on. Not shown is Mrs. Lewis Ferriera, second vice president.

Improvement Classes Designed For Housewife, Career Girl Alike

Another series of ARA-sponsored self-improvement classes for women will open next week at ARA Clubhouse.

Two beginning classes for adults and a teen-ager series will be taught by Sherry Miller, professional model and charm school instructor.

Designed for the "career girl" and housewife alike, emphasis will be on the wholesome, natural look, including coaching in poise, social graces, make-up, hair styling, voice and diction, and wardrobe coordination.

The nine-week, 18-hour series costs $25 per person with $10 payable on registration, and the balance in $5 installments at the first three classes. Usual cost of the course is $155!

Instruction for teen-agers will be held from 5:15 to 7:15 p.m., Mondays, with the first session May 14. Two adult courses will meet from 7 to 9 p.m., Tuesdays and Thursdays beginning May 15 and 17.

Because classes are limited to 15 persons to insure individualized attention, students have been asked to register as soon as possible at employee services, Bldg. 8. Additional information is available from Dixie, ext. 1111.

Varsity Ball Team Showing Promise

Great promise was exhibited by ARA's Varsity Baseball Team in its first practice game with San Diego Police Department recently.

After five non-productive innings, GD/Astro made up a 7-run deficit and continued to a 13-7 victory. Winning pitcher was Bill Murphy who fanned 10 of the last 12 batters.

Highlighting batting performances were Marty Martinez and Garfield Winters who hit bases-loaded triples.

Team manager is Don Sanchez.

ARA WILL SPONSOR TRIP TO BIG BEAR

A weekend trip to Big Bear will be held under ARA sponsorship June 15, 16 and 17.

Bus transportation, meals and accommodations at Wawona Lodge are included in the package price of $25 per person. Activities at Big Bear will include outdoor sports, swimming and a special Saturday night party with pizza available at 25 cents each.

A chartered bus will leave GD/Astro at 5:30 p.m., Friday, returning about 7 p.m. Sunday.

The event is open to GD/Astro employees and families. Reservations are being taken on a first-come, first-served basis at the ARA Clubhouse office.

Management Golfers Must Sign by May 25

Golfers of GD/Astronautics Management Club must sign up before May 25 if they plan to compete in the coming NMA Southern California Area tourney, June 2-3.

The 18-hole event will be played over Torrey Pines south course. Entry fee is $2.50 each.

Art King, golf chairman, is taking registration of foursomes for either day, starting times 8 a.m. to 2 p.m. Call ext. 3554 at Astro main plant before the May 25 deadline.

Coineers Will Hear Roman Coin Talk

"Night owl" members of ARA's Swing Shift Coin Club will gather for a business meeting and swap session at 1:30 a.m., May 17 in ARA Clubhouse.

Their day shift counterparts, ARA Coineers, will meet the previous evening (May 16) at 7:30 p.m., also in the clubhouse.

Speaker will be Thomas W. Wade, authority on numismatics of the era 2,000 B.C. to 479 A.D. He will discuss Roman Empire coinage of the pre-Christian period.

Club members plan a related theme for the evening's display, based on "The Oldest Coin in My Collection."

Discounts Offered On Opera Tickets

Generous discounts on tickets to both Circle Arts Theatre and Starlight Opera for the coming season have been arranged for GD/Astro employees by ARA.

Tickets for the first Circle Arts performance, "Oklahoma," on June 3, are now available at employee services, Bldg. 8. ARA prices offer a 20 per cent saving.

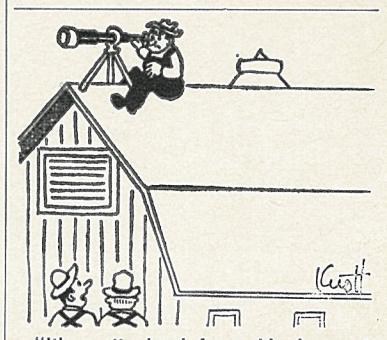
Tickets to subsequent Circle Arts and Starlight shows will be available about two weeks before the performance.

Radio Club Reduces Annual Dues to $2

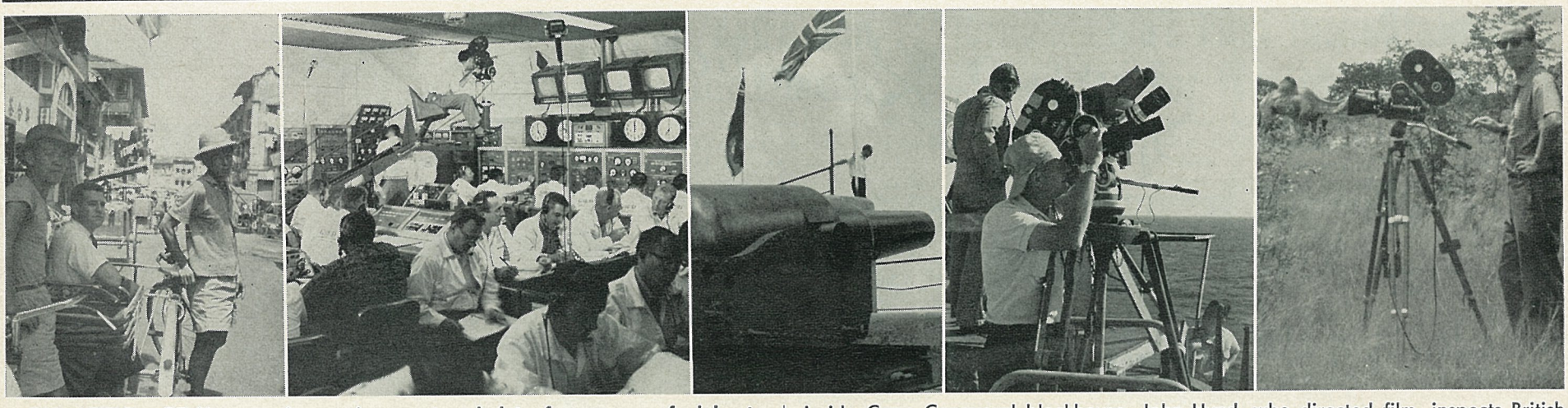
Future meetings of ARA Radio Club (first shift) will coincide with distribution of **General Dynamics NEWS**, Ed Dodero, ARA commissioner, has announced.

First meeting under the new schedule will be at 7:30 p.m. today (May 9) in ARA Clubhouse.

As an incentive in an intensive membership campaign now under way, Radio Club has reduced its annual dues to $2.



"It's pretty hard for a hired man to loaf any place on this farm."



FAR AFIELD—GD/Astronautics movie men traveled to far corners of globe to make film of Mercury flight for National Aeronautics and Space Administration. From left: Bill McClure, cameraman, in Singapore; boom-riding movie maker shoots inside Cape Canaveral blockhouse; John Hynd, who directed film, inspects British fort at Bermuda; Hal Reavely takes aim aboard recovery carrier, USS Randolph; John Hynd is "on location" near Kano, Nigeria, as camel wanders across "set."

Round-the-World Film Gives Foreign Reaction During Mercury Orbit

A motion picture produced by General Dynamics/Astronautics has provided millions of television viewers with the first full coverage of Lt. Col. John Glenn's Project Mercury Flight.

Two major networks carried edited versions of the film, and it was shown twice to GD/Astro employees in the Astronautics Recreation Association auditorium in San Diego, as well as at a special "Astro Night" in San Diego's Capri theater. Ultimately, the film will be available for community groups and showings at Astro off-site bases.

GD/Astro's Dept. 124 (motion pictures and television) produced the film for National Aeronautics and Space Administration (NASA) with Producer E. C. Keefer (now assistant to C. T. Newton, director of communication) and Director John Hynd (manager, motion pictures and TV) beginning background work almost a year in advance.

They made a round-the-world journey to check facilities and survey locations, and pave the way for production crews to cover the world-wide network of Project Mercury tracking stations. This was in April, 1961.

A full crew including Keefer and Hynd, Frank Kerr, writer, Loren Steadman, in charge of sound, and Bill McClure, assistant to the director, went into production in July during a second journey which established tracking stations on film and gathered general tracking procedure information.

As the date for the launch approached, Astro men took up vigils at distant stations.

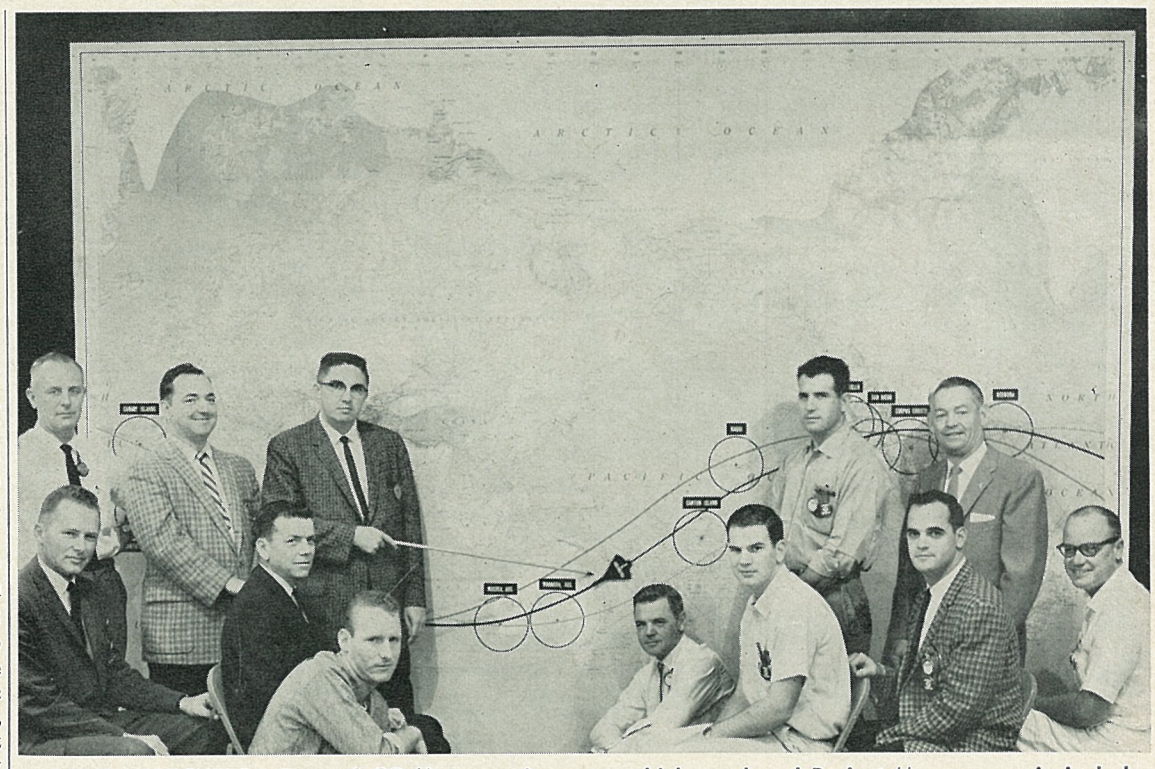
At Cape Canaveral, Hynd, Steadman, Kerr, McClure, Pat Callahan and Jerry Green concentrated on blockhouse operations and the "star" of the show, Astronaut Glenn.

At NASA's Project Mercury "nerve center" in Greenbelt, Md., were Mark Irwin, H. W. Lovejoy and Brent Judd. Jim Leath and Dick Crawford were based in Bermuda, while Bob Gobrecht headed for Kano, Nigeria.

To Perth and Woomera, Australia, went Bob Montague; Stan Ganser was at Kauai, Hawaii; Bill Hetrick was assigned to Guaymas, Mexico; and Mike Reese was stationed at Pacific Missile Range Headquarters, Calif. Larry Newell was ready at Corpus Christi, Tex.; while Willy Barton, Chuck DeMund and Hal Reavely went to sea aboard the aircraft carrier USS Randolph.

Production of the film was not without "behind the scenes" drama. Cameraman Bob Gobrecht topped the list for troubles. In London, pressed for time and unable to wait a week for a permit, he tried to "talk" his way into the House of Commons in order to obtain some footage of Big Ben. He made it through two guards, only to be ejected when near his goal. Similarly, in Greece he sought shots of Athens from atop the Acropolis but fell afoul of a local ruling requiring a tax on professionals and was ejected again.

In Lebanon, evidently mistaken for a subversive, he was held under guard for several hours before being released.



ORBIT WATCHERS—Part of GD/Astronautics crew which produced Project Mercury movie includes (standing, left to right) Hal Reavely, Bob Gobrecht, Loren Steadman, Bill McClure and Mark Irwin; (seated, from left) Bill Hetrick, H. W. Lovejoy, Pat Callahan, Willy Barton, Brent Judd, Mike Reese and Chuck DeMund.

GD/E Products Put on Display

Products of General Dynamics/Electronics division are being displayed at two scientific conferences in different parts of the country this month.

Demonstrations of the S-C 3070 with Digitromic tape reader input and the S-C 1090 with IBM 729 tape transport were given last week, May 1-3, at the Spring Joint Computer Conference in San Francisco.

N. E. Frawley of GD/Electronics in San Diego, spoke on "High Speed Recording from Digital Data," at a special evening session.

This coming week, May 14-16, the GD/Electronics-developed terrain avoidance radar and CHARACTRON[R] shaped beam tubes will be shown at the 1962 National Aerospace Electronics Conference, Dayton, Ohio.

FW's Magers Elected To Honors Society

E. L. Magers of GD/FW, an instructor in the TCU Evening College, recently became the first faculty member to earn an invitation into Iota Chapter of Alpha Sigma Lambda, national evening college honor society.

Faculty members in the organization are limited to "those who make outstanding contributions to scholastic training of evening college students."

To be eligible, a faculty member must be elected by student members. He also must have taught in evening college for at least three years.

Magers will be initiated May 12.

WATSON TO ATTEND DIRECTORS MEETING

John N. Watson of GD/Fort Worth educational services will attend a spring board of directors meeting of National Management Association in San Francisco, May 14-18. Watson is Zone B vice president of NMA.

Model of Consolidated Airplane Recalls First Blind Flight in '29

A model of the Consolidated Aircraft NY-2 airplane in which Lt. James H. Doolittle (now general, ret.) made the first completely hooded instrument flight is on display in the National Air Museum in Washington, D.C.

The model was built by Capt. Robert C. Mikesh, USAF, sponsored by Major R. H. Fleet, founder of Consolidated, who requested the model to commemorate Doolittle's historic flight, Sept. 24, 1929.

The flight is mentioned in a history of Convair, authored by Howard O. Welty and carried serially in **General Dynamics NEWS**, concluding Feb. 28, 1962. The reference states that the Guggenheim Fund "borrowed" Doolittle in 1928-29 to conduct the first blind flying tests, under a cockpit hood, and that the project caused "quite a stir."

The airplane was modified for Doolittle by Consolidated at Buffalo, N.Y., "and boy, did the Guggenheims scream about the bill!"

The Guggenheim project was called "Solving the Problem of Fog Flying." Front seat observer for the flight was Lt. Benjamin Kelsey (now general, ret.).

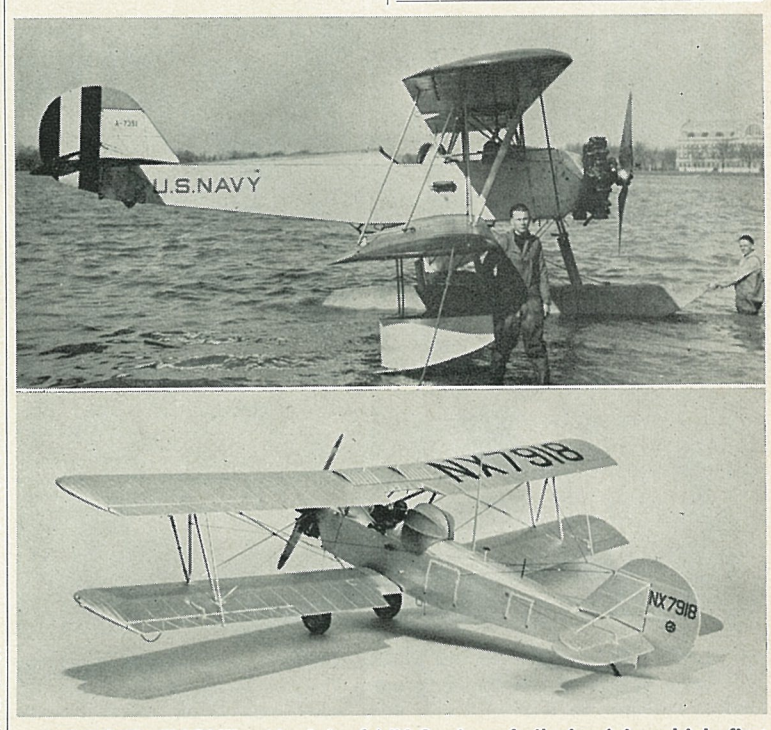
Thule F-102 Passes Thousand Air Hours

An F-102 flying with the 332nd Fighter Interceptor Squadron at Thule Air Base, Greenland, passed the 1,000-hr. mark last month.

No. 561494 became the first of the squadron's F-102 fleet to chalk that many hours in the air. Piloting the aircraft past the 1,000-hr. point was 1st Lt. Carl W. Bloug.

The craft had no maintenance cancellation for 60 days.

INAUGURAL—American Airlines chose Carol Jean Walker, 5, to be "Miss 990" at Detroit inaugural of 990 Astrojet service. She is shown with stewardesses Jean Gutsell, Kay Miles, Rosemary Nicholson and Gwen Burns.



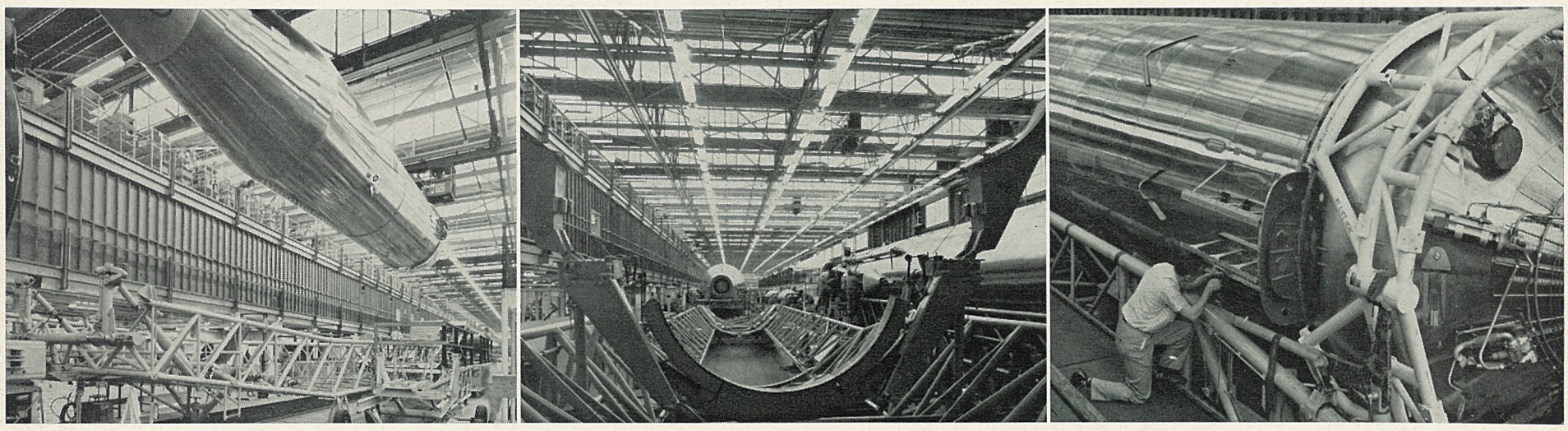
HOODED FLIGHT—Model of NY-2 aircraft (below) in which first instrument flight was made now hangs in National Air Museum. Photo above is of NY-1, Navy version of Consolidated ship.

GD

ASTRONAUTICS EDITION

GENERAL DYNAMICS NEWS

Vol. 15, No. 11 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, May 23, 1962



UPDATING—Photos taken at GD/Astronautics area in Plant 2, San Diego, show work in progress updating Atlas missiles. At left missile is being lowered into handling trailer, while in center is "business end" of Atlas directed at camera, with modification crew at work. At right, left pod gets technician's attention.

Edwards Rocket Site Joins Centaur Project

In creating its new Centaur project line organization, General Dynamics/Astronautics has transferred one entire test base operation and a portion of another.

Edwards Rocket Site shifted as a base, while that portion of the Sycamore Canyon operation concerned with Centaur also transferred into the new organization.

"The same people will be manning the same facilities utilized over the past two years," said Grant L. Hansen, vice president and program director—Centaur. "This change is in keeping with realignments enabling us to make quicker responses to customer requirements."

W. R. "Wick" Jackson, a veteran Atlas project engineer and test conductor, is manager of test operations. Roger C. Lynch is manager of launch operations at AMR.

Centaur test operations work force currently numbers about 450.

Edwards RS has the largest number on hand, conducting "hot firings" of the Centaur system on Test Stand 1-1. V. L. Allwardt is Astro operation manager there, while Dan Sarokon is test conductor. Previously used in the Atlas test program, Stand 1-1 has been modified for Centaur.

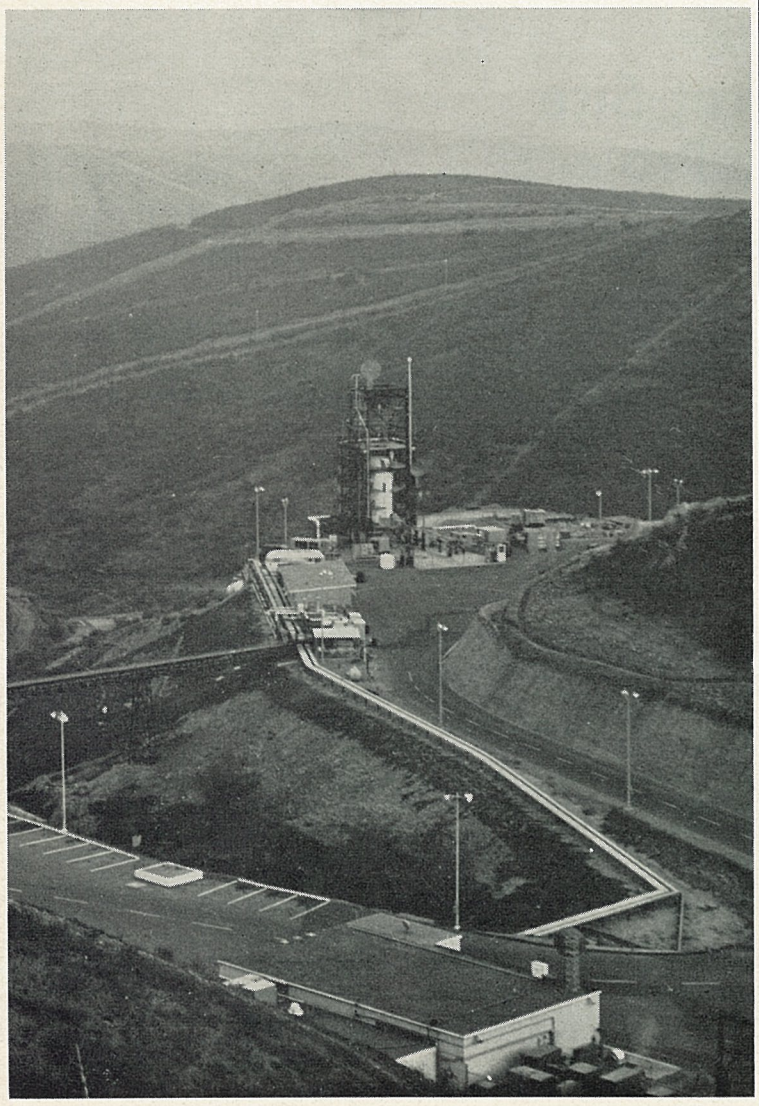
At Sycamore Canyon Test Stand 4 is assigned to Centaur. It was designed for Centaur and offers a contrast to neighboring Atlas stands which tower above it. Everything about Stand 4 is smaller, since reduced fuel loads, plus the use of liquid hydrogen-liquid oxygen engines, make the larger-sized Atlas facilities unnecessary.

And Stand 4 has no separate blockhouse!

Astro designers laid out this stand so that it could be hooked directly into nearby Atlas stand facilities, greatly reducing costs by avoiding duplicate instrumentation, fuel tanks, etc.

"Both of our major bases have contributed outstanding technical support in Centaur development, meeting customer requirements within allotted schedules," Jackson said.

(Continued on Page 2)



AT SYCAMORE—Centaur test stand is shown at Sycamore Canyon near San Diego, with blockhouse in foreground.

Missiles Leave Plant 2 Center Spick and Span

At General Dynamics/Astronautics Plant 2 support center, a bustling "factory within a factory" continues a little-known program begun almost a year ago.

In addition to its normal depot functions, the depot operations' missile modification group (Dept. 344-3) in Bldg. 3 is outfitted for almost all tasks required for repair, refurbishing or modification of Atlas missiles.

Atlas ICBMs of the Strategic Air Command are returned to Plant 2 from training or operational bases where they have completed a specific function, to receive any modifications — as well as any systems decontamination or repair — necessary to ready them for another SAC assignment.

With W. W. Pierce, support center manager, first shift operations are headed by H. C. Medearis, operations superintendent; W. J. Cushman, operations general foreman; and A. J. Braidic, chief of manufacturing control.

H. R. Crouthamel, assistant general foreman, and his support manufacturing control counterparts lead second shift functions to maintain modification operations on a 24-hour basis.

The modification group represents a wide variety of skills.

Its capabilities include mechanical, electrical and electronic work, welding, painting, and both mechanical and electronic systems operations. Its machine and sheet metal shops can manufacture missile parts as well as repair existing installations.

In its Plant 2 clean room, modification repair, cleaning, reassembly and functional testing of nearly all weapon system components can be accomplished. And in addition, depot operations has components autopro-

(Continued on Page 2)

June 11-15 Chosen For Bond Campaign

June 11-15 will be the dates for the annual effort to encourage purchase of U.S. Savings Bonds through payroll deductions at all General Dynamics/Astronautics installations.

This year the annual campaign will be limited to those employees who are not presently buying bonds through payroll deduction. Each will be given a tab card for completion, if they care to join the plan.

Present bond buyers who may care to increase their bond allotments may contact employee services for appropriate authorization cards.

Bigley Selected For GD/Astro's President Award

A Cost Improvement Proposal (CIP) with savings of nearly $2 million earned J. L. Bigley, Dept. 331-1, the General Dynamics/Astronautics President's Award for 1961.

W. W. Withee, vice president-research and engineering, represented President J. R. Dempsey in presenting the award at the May 9 meeting of GD/Astro Management Club.

Bigley's proposal, installed late last year, was based on the proposition "Store Now—Rehabilitate Later."

It concerned establishment of a "back yard" where excess test ground support equipment could be stored in "as is" condition. Previously such equipment was sent to disposition stores for salvage, or refurbished to "like new" condition under a specific contract.

Since funds for refurbishing were limited, the latter course was often impossible, with the result that equipment was not available when a subsequent, unanticipated need arose.

Bigley proposed that excess or unserviceable items be sent to a "dead storage" yard and protected by regular maintenance from further deterioration.

Savings to GD/Astro exceeded $1,724,000!

As President's Award winner, Bigley received a plaque, a parchment facsimile of the award, and a $250 merchandise certificate.

His name will be engraved on the permanent plaque displayed in President Dempsey's office.

Salaried employees at GD/Astro submitted 393 CIPs with savings totaling $5,194,095 during 1961. Eight were selected as candidates for the President's Award on the basis of individual participation in the cost reduction program, their proposal's dollar savings, ingenuity and originality.

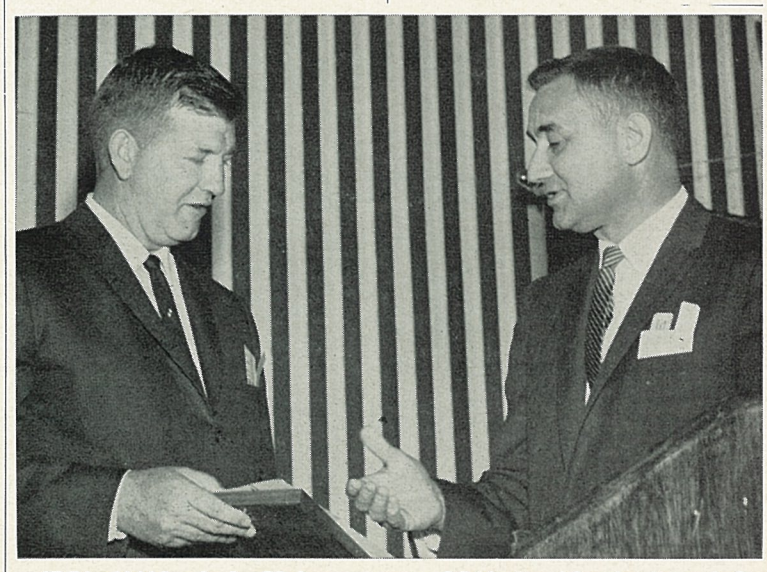
The other candidates, whose CIPs (with Bigley's) totaled over $4.5 million in savings were T. E. Becht, Dept. 831-1; R. E. Bruce, Dept. 402; J. V. Dickson, Dept. 110-0; R. T. Morris, Dept. 460; M. O. Ramsey, Dept. 450; A. R. Stockett, Dept. 337-5; and F. P. Vining, Dept. 758-0.

Little Joe II Contract Won

General Dynamics/Convair last week was awarded a contract to design and manufacture a launch vehicle that will be used to boost the Apollo spacecraft on unmanned sub-orbital test flights.

The contract was awarded by the National Aeronautics and Space Administration, Manned Spacecraft Center, Houston, Texas. The launch vehicle GD/Convair will make is called Little Joe II. The ultimate objective of the NASA Apollo program is to land men on the moon.

Before a manned Apollo spacecraft is launched, sub-orbital test flights are required to prove out necessary safety provisions. Little Joe II will be designed as an economical and expendable launch vehicle to propel the spacecraft on the sub-orbital flights.



IDEA MAN—J. L. Bigley accepts 1961 President's Award for year's major contribution to cost reduction program from W. W. Withee, GD/Astro vice president-research and engineering.

Log Book Entries

Promotions

MAIN PLANT

Promotions to or within supervision effective May 7.

Dept. 101, Data Processing: To asst. research group engineer, D. C. Handley Jr.

Dept. 110, Contracts: To contract administrator, H. S. Bendixen.

Dept. 124, Communication: To photography asst. supervisor, W. F. Hetrick.

Dept. 140, Reliability Control: To inspection supervisor, G. E. Briggs.

Dept. 146, Reliability Control Engineering: To asst. reliability group engineer, D. R. Nash.

Dept. 151, Change Administration: To change administration asst. supervisor, W. C. Drew, C. E. Hobson, A. P. Tyre.

Dept. 170, Organization & Systems: To organization and systems supervisor, G. N. Hampton.

Dept. 191, General Accounting: To accounting asst. supervisor, N. C. Theel.

Dept. 193, Industrial Accounting: To accounting asst. supervisor, D. R. Springer.

Dept. 224, Production Control: To production control asst. foreman, J. J. Ward.

Dept. 290, Applied Manufacturing Research & Product Development: To manufacturing development asst. supervisor, A. P. Langlois.

Dept. 322, Support Publications: To asst. supervisor support publications, R. M. Mueller.

Dept. 324, Field & Service Engineering: To field engineering supervisor, R. Romero.

Dept. 330, Support Logistics: To support planning and estimating supervisor, J. D. Henzler.

Dept. 331, Support Supply: To receiving and stores asst. foreman, N. W. Johnson. To GFE asst. supervisor, R. C. Zinser.

Dept. 351, Field Modification: To material control supervisor, H. G. Thatcher.

Dept. 410, Tool Control: To tool control asst. foreman, W. A. Carlson.

Dept. 811, Components & Hardware: To purchasing agent, F. S. Brown Jr.

Dept. 954, Centaur Program Control: To budget supervisor, E. D. Doyle.

Dept. 968, Centaur Material: To chief procurement planning, F. H. Branscom. To chief procurement, E. R. Gaynor.

ALTUS AFB

Dept. 617, GD/Astronautics Operations: To cost control supervisor, B. A. Barton.

LINCOLN AFB

Dept. 616, GD/Astronautics Operations: To asst. supervisor industrial engineering-base, F. Feuer. To plant engineering asst. supervisor-base, D. E. Harris. To launch complex asst. supervisor, R. M. Golden.

PLATTSBURGH AFB

Dept. 620, GD/Astronautics Operations: To MAB supervisor, G. F. Maclean.

SCHILLING AFB

Dept. 615, GD/Astronautics Operations: To launch complex supervisor, C. B. Rogers. To cost control supervisor, I. L. Williams.

VANDENBERG AFB

Dept. 576, GD/Astronautics Operations: To asst. test conductor, H. W. Anderson.

WALKER AFB

Dept. 619, GD/Astronautics Operations: To launch complex asst. supervisor, D. E. Ecker. To production control foreman, J. P. Nichols.

Personals

MAIN PLANT

We extend our deepest appreciation to the host of General Dynamics friends of Ed Rominger, Dept. 31, for the many thoughtful and heartwarming kindnesses.

Mrs. Ed Rominger and family.

* * *

I wish to express sincere appreciation for flowers and condolences received following the death of my husband, Bill, assigned to GD/Astronautics Warren AFB operation.

Mrs. William Archer,
Denise and Billy Jr.

* * *

Sincere thanks to our many friends for expressions of kindness and contributions to the children's education following the death of our husband and father, Charles.

Mrs. Dorothy Kushera,
Jimmy and Janet.

* * *

Our sincere thanks to the many friends who expressed sympathy following the death of our loved one, Mrs. Bess Burkhalter.

Mr. and Mrs. W. L. Burkhalter,
Dept. 141-1.

* * *

I would like to express my sincere appreciation to all of my husband's friends throughout General Dynamics for the many spiritual bouquets, contributions to the Heart Fund, lovely floral gifts, and expressions of sympathy. They have been a great comfort to me.

Palmyra Amaral.

* * *

Sincere thanks to our GD/Convair and GD/Astronautics friends for their kind expressions of sympathy following the death of Everett E. Aldridge.

Mr. and Mrs. Allen B. Woods Sr.
(Astro Dept. 101)
Mr. and Mrs. George W. Christian
(Convair Dept. 6-3).

Alton D. Parsons, GD/Astro Dept. 756-0, recently received his 25-year service emblem.

Service Emblems

MAIN PLANT

Service emblems due during the period May 16 through May 31.

Thirty-year: Dept. 700-0, J. M. Kline.

Twenty-five-year: Dept. 170-1, D. L. Kimball; Dept. 344-3, Laurel P. Smith; Dept. 783-0, H. M. Seitz.

Twenty-year: Dept. 537-7, E. L. Holston; Dept. 756-0, F. M. Wilson; Dept. 758-0, C. P. Hansen.

Fifteen-year: Dept. 130-1, A. C. Gates; Dept. 337-2, B. H. Garrett; Dept. 344-3, M. R. Burns; Dept. 461-0, Adeline J. Lowe; Dept. 539-5, W. H. Hill; Dept. 545-7, H. A. Lawrence; Dept. 756-0, A. L. Carlile; Dept. 759-0, H. R. Short; Dept. 781-0, Jessie E. Woolford.

Ten-year: Dept. 130-2, Mercedes C. Adolph; Dept. 143-5, W. A. Todd; Dept. 155-0, William Dumoulin; Dept. 193-1, Ruby T. Baker; Dept. 222-2, P. C. Tubach; Dept. 223-1, D. M. Chappel; Dept. 324-6, Adela Kushey; Dept. 331, C. A. Braithwaite, P. R. Grokoest; Dept. 333-2, W. J. Williams; Dept. 335, C. R. Doering, H. F. Mills, C. E. Routh; Dept. 337-1, H. E. Gettel; Dept. 343, O. W. Clark, J. E. Pate.

Dept. 351-3, J. A. Sweeney; Dept. 402-1, R. A. Sieberts; Dept. 521-6, Luba P. Wallace; Dept. 561-4, J. P. Flatley; Dept. 591-0, W. H. Schwidetzky; Dept. 756, James Fritz, J. D. J. Jones; Dept. 758-0, J. L. Hagewood; Dept. 781-0, K. M. Hemmingson; Dept. 783-0, L. H. Vivian; Dept. 833-1, K. J. Macauley; Dept. 972-0, E. L. Leezy.

ALTUS AFB

Ten-year: Dept. 617-9, E. C. Dell.

DYESS AFB

Ten-year: Dept. 618-3, J. F. Tyl.

LINCOLN AFB

Ten-year: Dept. 616, J. J. Datin, C. E. Havener.

SCHILLING AFB

Twenty-year: Dept. 615-9, E. R. Luther.

SYCAMORE

Fifteen-year: Dept. 573-3, Michael Richardson.

VANDENBERG AFB

Ten-year: Dept. 576, M. F. Brown, R. W. Johnstone.

WALKER AFB

Ten-year: Dept. 619-4, Orla L. Currier.

Births

MAIN PLANT

ELY—Son, John Richard, 7 lbs., 14 oz., born April 30 to Mr. and Mrs. Melvin Ely, Dept. 974-4.

FOX—Son, James Vincent, 10 lbs., 12½ oz., born May 11 to Mr. and Mrs. D. W. Fox, Dept. 510-1.

MENEZES—Daughter, Cynthia Ann, 7 lbs., 12 oz., born April 11 to Mr. and Mrs. Howard L. Menezes, Dept. 223-3.

STUART—Son, Brian Louis, 7 lbs., 14 oz., born April 28 to Mr. and Mrs. L. P. Stuart (on loan to Dept. 964-3 from GD/Fort Worth Dept. 6).

Deaths

MAIN PLANT

STAMMER—Herbert W., Dept. 461-0. Died April 10. Survived by wife, Dorothy.

Notices

UTILITY SHUTDOWN

All natural gas services to Plant 71, the material building (92), and the ARA Area will be shut down from 7 a.m. to 4:30 p.m., Sunday, May 27.

R. D. Leonard, supervisor
Plant Engineering, Dept. 250-2.

GD/Astro Son Earns Medical Fellowship

PLATTSBURGH AFB — John A. Giddings, son of H. E. Giddings of GD/Astro's operations here, has received a research fellowship from the National Health Institute for research in Lipo-Proteins.

Research will be pursued this summer in the Department of Clinical Chemistry, Los Angeles County Hospital. Young Giddings is a freshman student at California Medical College, Los Angeles.

ELECTED—GD/Astro Management Club will seat new officers in June, including those shown above. They are, from left, T. F. McCubbin (treasurer), A. J. Gillette (financial secretary), D. K. Slingsby (board), R. L. Craig (2nd vice president), C. L. Hartshorn (board), E. V. Russell (president), J. A. Croft (recording secretary), R. T. Bauman (1st vice president) and A. R. Mosco (board).

Stores Requisitioning System Streamlined

Next month General Dynamics/Astronautics installs a new commercial stores requisitioning system which will enable the material department to better serve those requesting office supplies.

A new division standard practice covering the system is being prepared for early distribution. A division notice will set the effective date, expected in early June.

All Astronautics operations, including off-site bases, are involved.

Basically, changes call for consolidation of all commercial stores (groups 30, 31, 32 and 37) at a single location, a single requisition on which as many as 23 different items may be ordered, and a set ordering schedule by buildings and subsequent delivery five working days later.

Work is now in progress transferring commercial stores, now located in Bldg. 5, to a new commercial stores center located at Col. F-5 in the materials building (92). Once the move is completed and the new system in operation, stores will be available only at this location.

Of particular interest to ordering clerks is the new commercial stores requisition, called Form A4003. With it as many as 23 different items may be ordered. It replaces individual forms for each item required. Now available at stores, Form A4003 is to be used exclusively once the system is installed.

"Departments must now plan ahead by ordering stores on a weekly basis," said F. J. Parker, chief of stores and traffic. "In no case will we be able to fill orders for greater than a month's supply."

Most of the routine currently covering requisitions will be retained, with the exception of changes noted. However, those responsible for ordering in each department are advised to study the new standard practice for exact details.

The following order days have been established for the main plant area: Bldgs. 1 and 26, Monday; Bldgs. 2 and 3, Tuesday; Bldgs. 6, 8, 21, 27 and 36, Wednesday; Bldgs. 4 and 5, Thursday; and Bldgs. 33 and the materials building (92), Friday. Orders will be delivered exactly five days later, excluding Saturday and Sunday.

Special arrangements will be set up by commercial stores to service Astro folk at bases as well as other San Diego area points such as Plants 1 and 2, Fordham Bldg., etc.

After issue of the standard practice, questions concerning the system may be referred to Jerry Garrison, commercial stores general foreman, at ext. 3125 or Jack King of organizations and systems, ext. 3115.

Astro Blood Credit Needs Replenishing During June 7 Visit

Administrative departments at General Dynamics/Astronautics will provide volunteer donors June 7 when the San Diego Blood Bank pays its regular quarterly visit to Astro.

Despite 297 pints collected in late November when operations departments supplied donors, Astro's credit at the Blood Bank has fallen to a low reserve of less than 36 pints. Demand for blood has been high and continues so.

At this visit operations will be centered in ARA Clubhouse with bus shuttles operating to the main plant. Solicitations are being conducted this week to line up donors.

Russell Wins In Club Vote

E. V. "Ed" Russell, production electronics (Dept. 781) general foreman, heads a new slate of General Dynamics/Astronautics Management Club officers to be installed at the June (16) meeting.

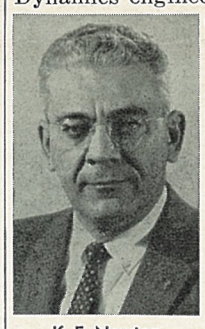
Successful candidates were revealed at the May 9 meeting.

Named first vice president was R. T. Bauman of Dept. 756. R. L. Craig of Dept. 130-7 is the new second vice president. The recording secretary post went to J. A. Croft of Dept. 130-3, with A. J. Gillette of Dept. 521-1 named financial secretary and T. F. McCubbin of Dept. 210-0, treasurer.

J. M. Jones (Dept. 842-0) and D. K. Slingsby (Dept. 773-0) fill three-year board of control vacancies. C. L. Hartshorn (Dept. 250) takes over a two-year board post, while G. N. McMillan (Dept. 521-7) and A. R. Mosco (Dept. 210-0) become one-year board members.

NEWTON ASSIGNED TO VANDENBERG

VANDENBERG AFB — Kenneth E. Newton, veteran General Dynamics engineer and chief test conductor, has been named manager of operations at this California base by W. Fenton Miller, chief engineer-test.



K. E. Newton

Newton will direct all GD/Astro operations here and also at the nearby Naval Missile Facility, Pt. Arguello.

A graduate of Southern Methodist University and former graduate student at Illinois Institute of Technology, Newton first joined Convair in 1948 at Daingerfield. After a brief period of employment outside the company he returned in late 1955 as a senior electronics engineer.

In 1960 Newton shifted to GD/Astro operations at Cape Canaveral as chief test conductor where he was responsible for many launches.

Missiles Modified By Astro at Plant 2

(Continued from Page 1)

grammed checkout equipment (CAPCHE) for testing "D" series Atlas airborne electronic components.

Most modification work to date has been with "D" missiles. Plant 71 cooperates on "E" and "F" series work, however.

Edwards Rocket Site Joins Centaur Project

(Continued from Page 1)

Responsible for Centaur operations at Sycamore Canyon is Fred Lee, chief of test operations, with H. M. Brown as test conductor.

While those directly concerned with Centaur have joined 900 departments, the regular test base force at Sycamore Canyon continues to provide needed support in a number of areas.

An additional test operation has been conducted at the Arnold Engineering Development Center, an Air Force test site at Tullahoma, Tenn. Astro has assisted in setting up facilities for high altitude testing of Centaur and its components, working directly under J. E. Lauen, flight test group engineer.

At the main plant Centaur personnel provide support of all off-site locations and also conduct factory checkout of all Centaur vehicles, with Charles Notar directly in charge of the latter.

Continuing are test operations on Centaur conducted by engineering department at Astro's Point Loma test installation with Warren Hardy shouldering key responsibilities.

ON DUTY—First ambulance assigned at GD/Astro's main plant went into service this month. Members of central medical force, including Dr. A. J. Bellanca, chief physician, at right, look it over. Fire department operates vehicle for medical section. Ambulance includes emergency medical supplies, portable and fixed oxygen units, etc.

General Dynamics NEWS

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GD/Electronics (San Diego) news contacts: Helen Wood, CY-8-8331, ext. 15, 1895 Hancock St.; Betty Freeby, CY-8-4641, ext. 1377, Plant 1, Bldg. 51.

Fort Worth Editorial Offices, Col. 72, Admin. Bldg., GD/Fort Worth, Mail Zone 0-50, P.O. Box 748, Fort Worth 1, Texas. Telephone PErshing 8-7311, ext. 2961. Staff: Dave Lewis, editor; Mary Beck.

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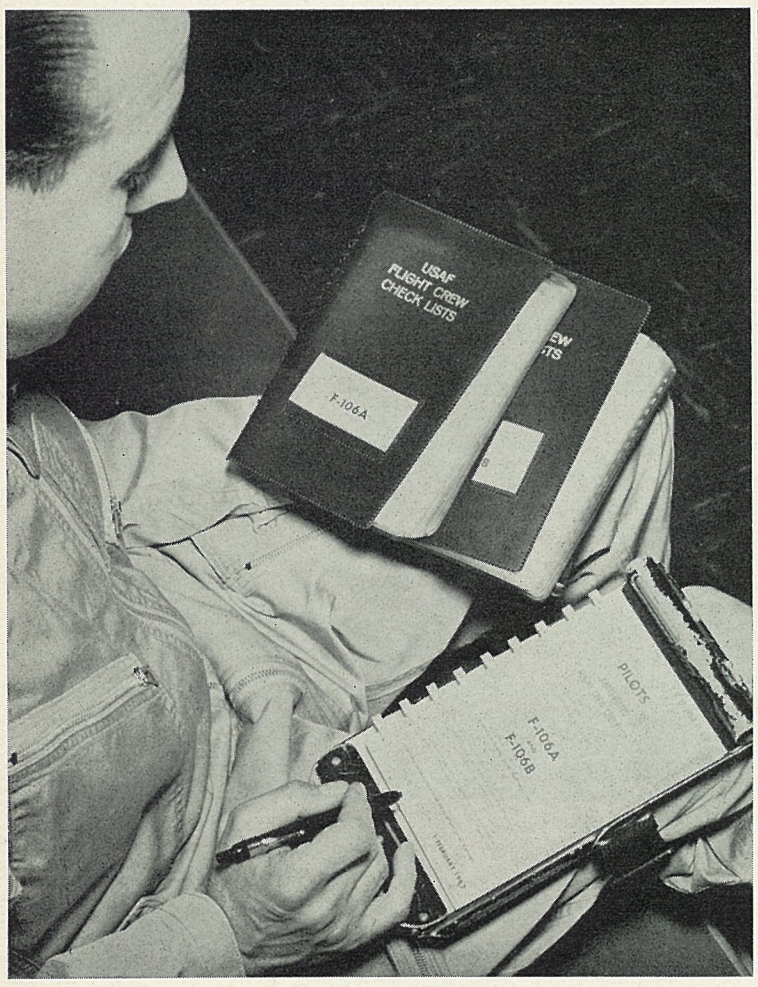


PILOT AID—C. M. Keys, GD/Convair technical publications specialist, shows handy new GD/Convair-developed pilots' in-flight checklist clipped to knee pad, in comparison with former bulky binder type.

New Style of Checklist Convenient For Pilots

Air Force pilots flying F-106s are getting a boost with a new streamlined pilots' checklist, developed in General Dynamics/Convair technical publications.

Howard R. Kennedy, manager of GD/Convair technical publications, announced last week that a new style checklist has been completed and is now officially being distributed to all F-106 commands.

It compresses material contained in the former standard Air Force binders (one for the F-106A and one for the F-106B) into a single handy, durable form designed to simplify pilots' in-flight operations.

Revision was done during the last year under a continuing Air Force study contract from SAAMA for keeping checklists on Convair craft up to date, Kennedy explained.

"It was a joint effort between Capt. W. S. Seufert, Chief of Operations and Support Branch at SAAMA, and our publications group in line with GD/Convair's continuing program to improve necessary flight crew material," he said.

The checklists, carried in the plane's cockpit at all times for constant reference by the crew, are abbreviated forms of flight requirement information condensed from voluminous flight manuals, since it would be impractical for a pilot in a swift-flying jet to consult a large flight manual.

The newly-developed type, printed in black on bright yellow stock, is 4½ inches wide and 7 inches long. It is small and compact enough to be clipped to the pilot's knee pad.

The former in-flight books were an acetate filler type. By the time the pilot inserted required informations and notes, the binder became awkward and cumbersome.

Now, with a flick of the wrist the pilot can locate any information he needs—either for normal or emergency procedures. Laminated pages in front and back allow the pilot to jot down flight planning data.

The red-bordered emergency section, in the front of the book, is visually indexed, arranged with each succeeding page longer by a quarter of an inch. Emergency conditions are listed at the bottom of each page so that the pilot can flip immediately to the right page.

Pages of the second section, containing normal procedures, are slightly wider, making it easier for the pilot to flip past the emergency section when not needed.

Added innovation is the flight performance appendix with performance charts. These enable the pilot to compute takeoff, climb, cruise, acceleration, descent, landing, more efficiently.

The present checklist evolved from a GD/Convair-funded prototype designed by technical publications and tested by F-102 pilots in 1958.

Kennedy emphasized that "this is a definite step forward in standardizing and simplifying checklists to the extent that the Air Force is considering the new format for all high-performance aircraft."

"Don't be silly! That's not an Atlas! . . . An Atlas is a *MISSILE*."

AIRCRAFT FATIGUE MANUAL ORDERED IN NAVY CONTRACT

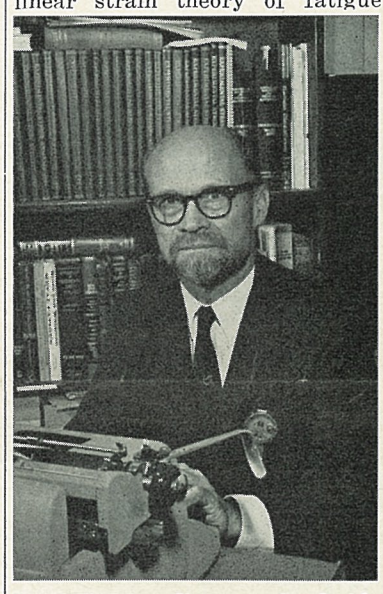
A General Dynamics/Convair fatigue research specialist has been commissioned to write a design manual on fatigue-resistant aircraft structures for the Navy through a contract received by GD/Convair from the Naval Air Material Center, Philadelphia, Pa.

The contract, amounting to nearly $20,500, is the result of a proposal submitted by Clarence R. Smith, who has researched in the field of fatigue of metals and structures at GD/Convair over the last 10 years.

The book, to be titled "Fatigue Manual for Aircraft Designers," will be available through the Government Printing Office, Washington, D. C., as a handbook for designers. First draft is to be completed within 10 months.

Smith explained that content will deal with do's and don't's, illustrated with photographs of stress and failure. He is now touring different sections of the country, Fort Worth, Dallas, St. Louis, Cincinnati, Columbus, Wichita, collecting material.

At least five Navy and Air Force study contracts in fatigue work have come to GD/Convair through Smith's efforts. Recently concluded was a research contract from Air Research Laboratories, Wright -Patterson Aeronautical Systems Division, on his linear strain theory of fatigue life prediction.



AUTHOR—Clarence R. Smith, GD/Convair fatigue research expert, compiles material going into "Fatigue Manual for Aircraft Designers," commissioned by Navy.

An extension, which will allow another year's testing of his original Smith method, follow-on to the linear strain theory, was received the first of this month. Dollar value was approximately $30,000.

In addition, a Navy contract, amounting to $28,000, for application to full-scale structures was received the latter part of March.

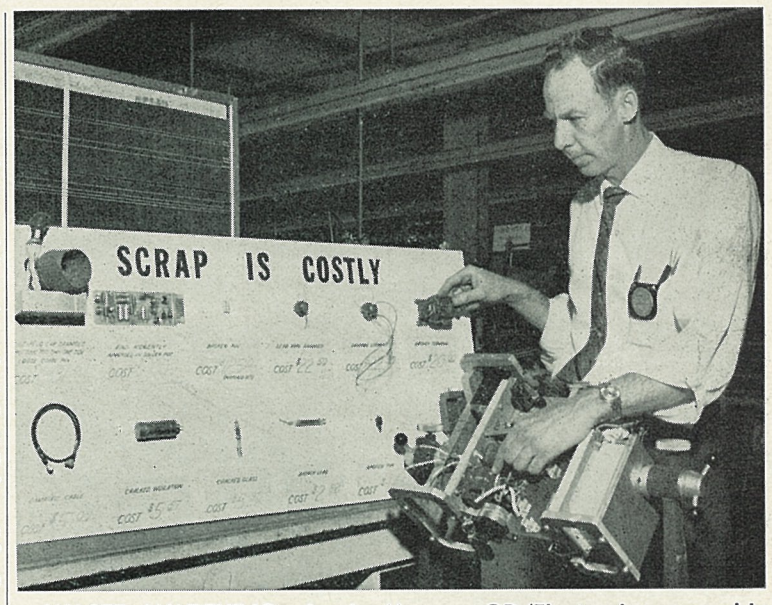
Smith was the first to establish the linear strain theory of fatigue life prediction which assumes that the strain at a concentration is linear beyond the yield point, provided that the adjacent material is still in the elastic range.

His first presentation was given before the Society for Experimental Stress Analysis in 1954.

His Smith method was first presented at a meeting of the Society of Automotive Engineers in New York, April of 1961.

Smith joined structures laboratories at GD/Convair 20 years ago, the last 10 of which has been devoted exclusively to fatigue investigation. He was responsible for design of the first fatigue test machine ever used within the division. For several years he has concentrated on methods of improving fatigue aircraft life and his developments, thin auxiliary doublers, edge-driven rivets, have been incorporated in structure of Convair 880s and 990s.

Save Material — Don't Throw Your Job Away!



WASTE WATCHING—L. J. Moran, GD/Electronics assembly foreman, indicates transformer, unusable because of broken terminal, and part it plays as component in modulator unit, worth several thousand dollars, in drive to control shortages.

Control Placed on 'Free Stock' To Avoid Risks of Shortages

"Free stock" will no longer be "free" in General Dynamics/Electronics assembly at San Diego.

The 1,500 different items most commonly used in assembly of costly electronic units have been removed from uncontrolled status, said H. O. Patchel, manager of production control.

These items, all $2 or less in value, are standard hardware—capacitors, resistors, nuts, bolts, special washers—which go into systems valued at thousands of dollars when completed.

"'For want of a nail the shoe was lost . . .' could very well point up the importance of keeping a sharp eye on the smallest item going into the complex systems put together in our electronics assembly area," Patchel stressed.

"We feel that more of the small components have been drawn from open stock than actually needed, causing shortages and, consequently, risks of production delay.

"Lack of a 1¢ item could easily hold up a quarter-million dollar system!"

Under the new system, all such items will be in standard inventory. Stockroom clerks will distribute a five-day supply to bins at each of the 110 assembly stations every fifth day. A check will be made every day to insure that each assembler has adequate stock on hand, depending upon need.

Anywhere from one to 30 standard hardware items go into a single assembly, with 500 or more different components used daily.

"This is but one more step in our overall program to keep all production operations under close surveillance and insure delivery on schedule," Patchel concluded.

GD/Convair Value Control Manager Voted First President of SAVE Chapter in SD

H. P. Williams, manager of value control at General Dynamics/Convair, has been elected first president of the newly-formed San Diego Chapter of SAVE (Society of American Value Engineers).

Election of pro tempore officers took place at the May 8 meeting in Convair executive dining room.

Another General Dynamics man, C. W. Christie of GD/Electronics at San Diego, was seated as second vice president of the new chapter, the largest accepted into the national organization. It now has a roster of 46 with charter memberships to be open for another month or two.

Other officers, all associated with value control programs within their own companies, are R. D. Allen of Ryan Aeronautical Co., first vice president; D. D. Shirk of Solar, secretary; H. L. Braasch of Ryan, treasurer.

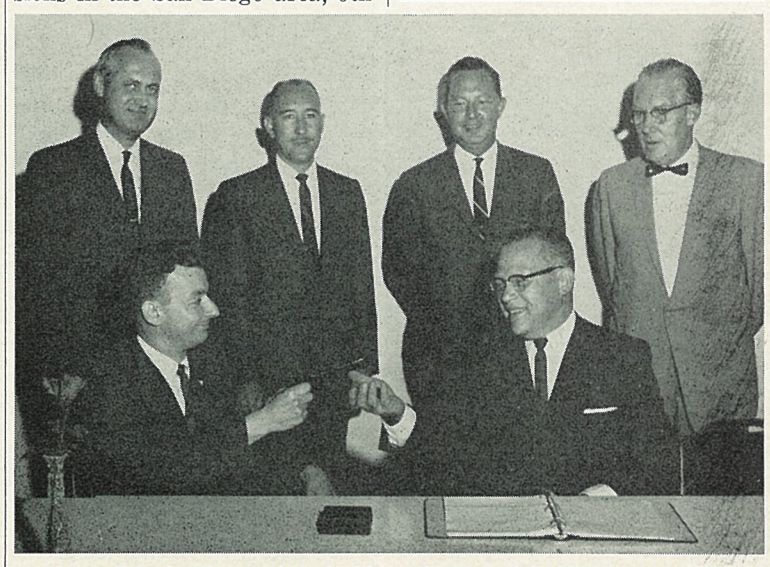
Besides General Dynamics divisions in the San Diego area, other companies represented include Ryan, Solar, Rohr, United Fund of SD County, California General, Inc., Western Gear Corp, Kinetics Corp., Rofran Design.

A rules and bylaws committee was appointed at the organization meeting and a schedule of regular meetings will be set up, said Williams. In addition, plans are under way for a series of value engineering seminars for members.

Value Engineering Discussion Topic

B. P. Schroeder, educational services supervisor at General Dynamics/Pomona, served as a discussion leader at the recent annual meeting of the American Society of Training Directors at Dallas, Tex.

Subject of the discussion was "Value Engineering Training." The meeting was conducted May 14-18 at the Statler Hilton Hotel in Dallas.



SAVE OFFICERS—G. W. Gebhart, National SAVE director (seated at left), hands gavel to H. P. Williams of GD/Convair, newly-elected president of San Diego Chapter. Other officers, standing from left, are H. L. Braasch of Ryan Aeronautical, D. D. Shirk of Solar, R. D. Allen of Ryan, C. W. Christie, GD/Electronics.

QUICK SUCCESS—Although in dramatic role for first time, Marian Wallace of GD/Astronautics was instant success in Old Globe (San Diego) Theater production of "A Raisin in the Sun."

GD/Astro Girl Scores Quick Hit In Her First Stage Production

This may astonish those who have seen Marian Wallace's characterization of "Ruth" in the current Old Globe Theater (San Diego) presentation of "A Raisin in the Sun," but she's making her first dramatic appearance!

A native of Indio, Marian graduated from Riverside City College and joined General Dynamics/Astronautics about 10 months ago in product support (support publications).

Previously, her talents have been noted in the field of singing, both as a soloist and member of small and large groups, and public speaking. She has taken part in many talent shows, but had never before tried drama.

When Director Craig Noel held readings for the show, both she and her husband turned out. Marian won one of the better supporting roles.

Marian is not sure if her first show will turn out to be her last.

"It takes an awful lot of time," she said. "And I really prefer to sing and do readings."

Visitors Tour Lab Facilities

General Dynamics/Convair laboratory facilities at the seaplane ramp were toured last week by a group of aerodynamics specialists from throughout the country.

The GD/Convair visit May 10 was a follow-on to a two-day meeting at GD/Pomona which saw 45 representatives from industry, universities, Naval installations gathering for the 46th Bumblebee Aerodynamics Panel session.

Those who traveled on to San Diego for an inspection of GD/Convair test facilities were Dr. L. L. Cronvich, chairman of the Bumblebee Aerodynamics Panel, Applied Physics Laboratories, Johns Hopkins University, Silver Spring, Md. Others from APL were C. S. Perry, panel secretary; R. H. Cramer, E. T. Marley, R. E. Walker, J. Jellinek.

Also, J. Darling, Naval Ordnance Laboratory, Silver Spring, Md.; Dr. M. J. Thompson, head of the aerospace department, and P. H. Miller, both of University of Texas; B. A. Bishop, head of aerodynamics, Bendix/Mishawaka, Ind.; W. Hatalsky, aerodynamics design specialist at GD/Pomona.

ASME Chapter Elects GD/Astro, Atomic Men To Club Positions

General Dynamics men elected officers of San Diego chapter, American Society of Mechanical Engineers (ASME), were announced recently by retiring nominations chairman P. J. Swanson, GD/Astro Dept. 510-2.

New vice chairman is Astro's G. L. Kugler. A. L. Habush, General Atomic, is secretary-treasurer. Named to the board of directors is R. M. Kuhns, Astro Dept. 578-3.

General Atomic's G. E. Kidd, and C. G. Erickson, Astro Dept. 593-6, were named to the nominating committee, and R. O. Morin, Astro Dept. 541-7, is publicity and newsletter chairman.

Dynamics Plants Will Close May 30

General Dynamics plants will close for the Memorial Day holiday next Wednesday, May 30.

All facilities will suspend work for the one day, except for essential maintenance and industrial security functions. Work will resume at regular shift hours Thursday.

License Identifies Pomona Engineer

W. A. "Bill" Dean, General Dynamics/Pomona project staff engineer, assigned to the Ships Qualification Assistance Team (SQAT) on the East Coast, is the envy of his team associates.

Dean lives in New Hampshire where special alphabetical auto license plates can be obtained. So, the license on his Corvette reads: "SQAT"!

Delta 880 Sets More Records

A Delta Air Lines Convair 880, on the inaugural jet flight from Puerto Rico to California, set an official speed record between San Juan and New Orleans May 3.

The Convair jetliner made the run in 3 hours, 23 minutes, and 45 seconds.

It was the second official mark of the day. Earlier, on the New Orleans to San Juan inaugural flight, the 1,721-mile distance was covered in 3 hours, 5 minutes, and 7 seconds. Speed averaged 582 miles per hour. Both flights were clocked officially by the National Aeronautic Association.

The 880 on both flights was the "Delta Queen," which holds the still-existing transcontinental record of 3 hours, 31 minutes, 54 seconds on its delivery flight Feb. 10, 1960, between San Diego and Miami, Fla.

The latest records were the eighth and ninth official marks held by Delta Convair 880s.

Biron Appointed To C of C Office

Robert H. Biron, General Dynamics vice president, was chosen a vice president of the San Diego Chamber of Commerce at an organizational meeting of directors last week.

He will serve with Hamilton Marston and William E. Quirk, other newly-elected vice presidents. Milton F. Fillius Jr., was elected president. All take office July 1 and serve for the fiscal year.

Biron has been active in community and civic affairs for a number of years. He was singled out as the first recipient of the annual award given by the Chamber for the most significant contribution to community development in recognition for his work when heading the group's University of California committee in 1958.

Members Vote in June On ISA and ARS Merger

During June General Dynamics Corporation members of the Institute of Aerospace Sciences (IAS) and the American Rocket Society (ARS) will vote within their own chapters on a proposed amalgamation.

The idea of bringing together technical societies within specialized fields of scientific activity which may overlap and duplicate, has been under nation-wide study for some time. Duplication has been described as costly in money and manhours and also detrimental to the quality of work performed by the societies.

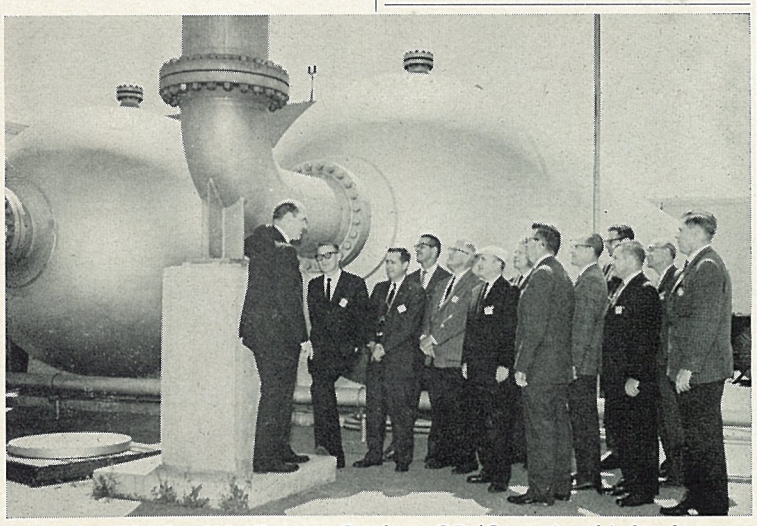
Long a strong supporter of professional technical and scientific societies, the Aerospace Industries Association (AIA) has urged the study of amalgamation.

The Board of Governors of AIA last November adopted a resolution stating its position and suggesting professional societies in aerospace industry review their activities and operations with an eye to eliminating duplication.

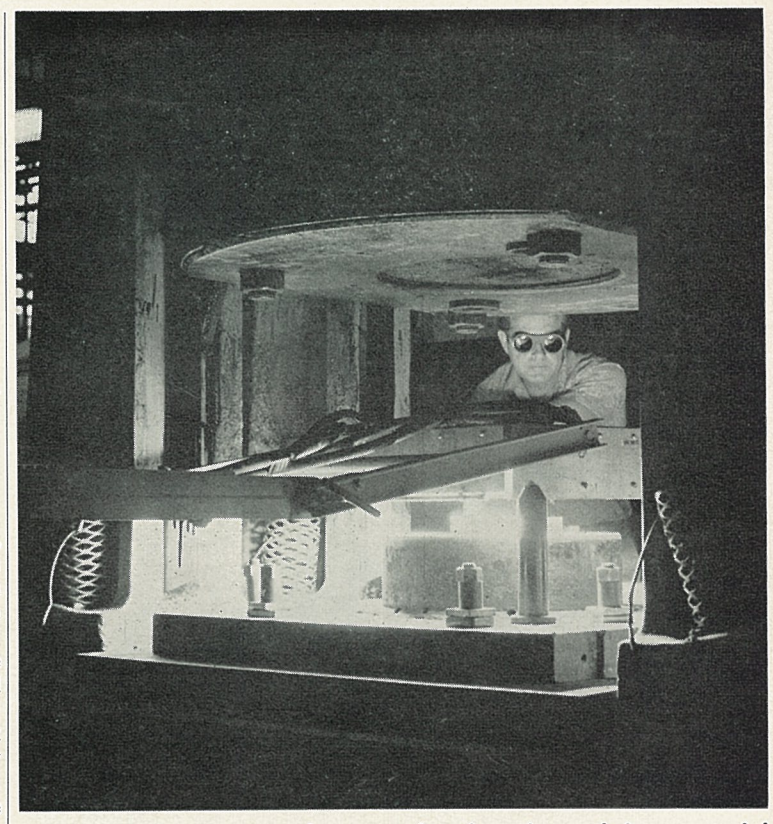
W. W. Withee, GD/Astronautics vice president-research and engineering, recently joined top industry representatives attending the Sixth Missile and Space Council meeting staged by AIA in Washington, D. C. He represented General Dynamics, attending for Mortimer Rosenbaum, executive vice president of GD/Astro.

"The council voiced strong support of the AIA resolution and also the proposed amalgamation of the two top groups voting in June," Withee said.

"General Dynamics has never advised its employees on how to vote on any issue," Withee said. "However, individual members of IAS and ARS are urged to give special attention to this subject prior to exercising their voting rights next month."



RAMP TOUR—W. T. MacCarthy, GD/Convair chief of aerodynamic labs (far left), explains operations of high speed wind tunnel to group of aerodynamic specialists from all over country during inspection of division laboratory facilities.



HOT FLASH—Battery of quartz glass heat lamps brings material being formed to high temperature in matter of seconds right on drop hammer. Reflected in blinding glare is George Rosen, setup man in GD/Convair Dept. 101.

Quick-Heat Method Adopted In Manufacture of Jet Parts

First application of a quick-heat method in forming of jet transport parts is being checked out at General Dynamics/Convair Plant 1.

Applied manufacturing research is testing performance of a heat lamp power cart using quartz glass heat lamps on fast heating of titanium sheets for forming right in the drop hammer. Parts will go into Convair 990 nacelles.

The quartz lamp method of heating can heat a sheet of such tough material as titanium, positioned on the hammer bed, to 1,200 degrees Fahrenheit in 7 to 30 seconds, depending on the material thickness.

With the conventional method, both die and part must be heated in an oven for an hour to bring them to the same temperature. Then, by the time they would be assembled, placed in the impact drop hammer, and formed, temperature would drop below the best forming temperature needed, said H. A. Buehler, senior research engineer.

A bank of 24 General Electric T-3 quartz glass heat lamps, which can generate 62,500 watts of heat over a 10x25-in. area, is extended over the material located on the die. Electrical power is automatically controlled by the power cart.

At the time the heat bank is retracted, safety guards are released allowing the hammer to come down and form the part.

Buehler, who has been involved in aerodynamic heating tests over the last five years, said that the same method was in use during the interceptor program at Plant 2 and in simulation of high temperatures during static and fatigue tests of the F-106.

Patent Personnel Involved in Shift

C. R. Brown of General Dynamics Corporation patent office has been assigned to GD/Astronautics as division patent counsel in a shift of Corporate Office patent personnel effective this week.

John Hazelwood goes to GD/Pomona as division patent counsel there.

Brown, who reports to H. Cushman Dow, GD/Astro division chief counsel, will handle patent matters for both GD/Astro and GD/Convair divisions.

His staff consists of Alfons Valukonis, Jerome Rockwood, Stan Kerr. For the present, they will continue to be headquartered in Bldg. 19 at San Diego.

Secretary at GD/FW Wins Story Contest

Mrs. Patsy Wilson, secretary at GD/FW, was a winner in the annual creative writing contest at Texas Christian University.

Her 2,000-word short story, "I-Man," was judged first in its category. Mrs. Wilson and other winners were honored at a luncheon May 10 on campus.

Mrs. Wilson is working toward a degree in English.

UNVEILED—First public demonstration of S-C 3070 electrostatic printer attracted attention to GD/Electronics display at recent Spring Joint Computer Conference, San Francisco. GD/E representatives explaining equipment to spectator at left are Ron McClure, R. W. Smit, Ken Gootgeld.

CLUB ACTIVITY—Management Clubs active at different General Dynamics divisions engage in wide variety of projects. GD/Fort Worth's club is particularly outstanding in civic works. Left above illustrates club's sponsorship in gathering 15 tons of food and clothing for hurricane Carla victims. Most meetings have educational tone, such as top center when panel of GD/Convair test pilots discussed experiences. But some have had dose of slapstick, such as at right! Center below shows club leaders meeting in San Diego last year. GD/Fort Worth and GD/Convair groups both celebrate 20th anniversaries this year.

HEFTY SWING—Christening USS Lafayette, Navy's largest Polaris missile-firing submarine at GD/Electric Boat shipyard in Groton, Conn., is Mrs. John F. Kennedy. In background is Roger Lewis, General Dynamics president.

CANADAIR VISITORS—His Excellency Major General George P. Vanier, Canada's Governor-General and Commander-in-Chief, and Madame Vanier visited Canadair last month and toured CF-104 line with J. Geoffrey Notman, Canadair president. Appointed by Queen Elizabeth (as Queen of Canada, not Queen of Britain) His Excellency is, in effect, "resident acting sovereign." He is a French-Canadian.

Two Dynamics Management Clubs Observe Their 20th Anniversaries

Four General Dynamics divisions now have six Management Clubs, and there may be more if opinion surveys conducted at Rochester, N. Y., are favorable.

Personnel of GD/Telecommunication and GD/Electronics at Rochester were approached during May for their reaction, and two National Management Association representatives, John W. Brown and Ted Harnack, visited the plants for exploratory conferences.

The possibility of new club organizations comes in an anniversary year for both GD/Convair and GD/Fort Worth clubs—their 20th. The GD/Convair club was founded in March, 1942, with a nucleus of 49 members. At one time in its history the club topped 3,000 members. A close second in seniority was the GD/Fort Worth club, formed in June, 1942, which also grew rapidly and peaked about 3,000 in 1960-61.

The GD/Pomona club was chartered Sept. 21, 1951, and has a membership of over 900, while the GD/Astronautics Management Club at San Diego, was chartered June 1, 1958, when approximately 800 members of the GD/Convair club transferred to the new organization.

GD/Astro's home club presently has 2,600 members, while the Astro AFMTC Club at Cape Canaveral, chartered in January, 1958, has 225. Another Astro club, operating at Vandenberg AFB, chartered in April, 1960, has 275 members.

Partly professional, partly community service and partly social, the clubs both young and old have amassed scores of commendable accomplishments over the years as affiliates of NMA. Club scholarships have helped dozens of sons and daughters in college, club gifts have placed TV sets in hospitals, club social events have brought together management members—and their wives, too—in a manner and setting not possible without club sponsorship.

Although any inference that one club was "better" than another would inevitably draw fire, GD/Fort Worth can point to three consecutive years during which its club was ranked No. 1 ("The Best Company Club in the Nation") by NMA. The awards were based mainly upon the club's many civic and educational activities.

During this time the club sponsored the Texas Christian University-Management Club management certificate program. Under the program, employees earn an associate certificate for completing 30 semester hours of prescribed management courses; a certificate for 60 semester hours; advanced certificate for 90 hours; and a bachelor's degree with a major in management for completing the entire curriculum. Recently, advanced degrees were being offered under the program.

The educational program is stimulated by the company tuition-refund program and the club's partial-tuition-refund plan.

Also noteworthy among GD/FW club activities is the annual "Fix-a-Toy" pre-Christmas project during which thousands of toys are repaired and distributed to needy children city-wide.

Other activities in which the various clubs take part include sponsorship of Junior Achievement Companies, speakers bureaus, management libraries, industrial tours, Toastmasters Clubs, etc.

Larry Lawson, former president of the GD/Convair club and active for many years in club circles, commented recently:

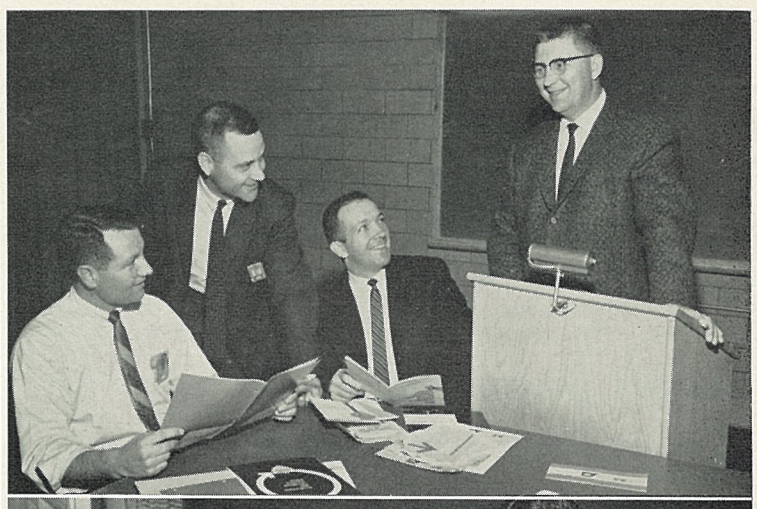
"The civic accomplishments, educational opportunities, and good works of all our clubs are impressive, of course; and the assist to such company-desirable objectives as cost reduction, through the annual President's Award, is considerable. However, from long association with club affairs, I really believe that the most important single benefit from club life is the informal social contacts which are achieved through club meetings and affairs.

"Do not discount these as trivial. It simply is a great deal easier to do business with men whom you know as away-from-the-job friends than it is to do business with those you know only in professional association. I do not mean this in personal advancement, but in doing a more efficient job on the job."

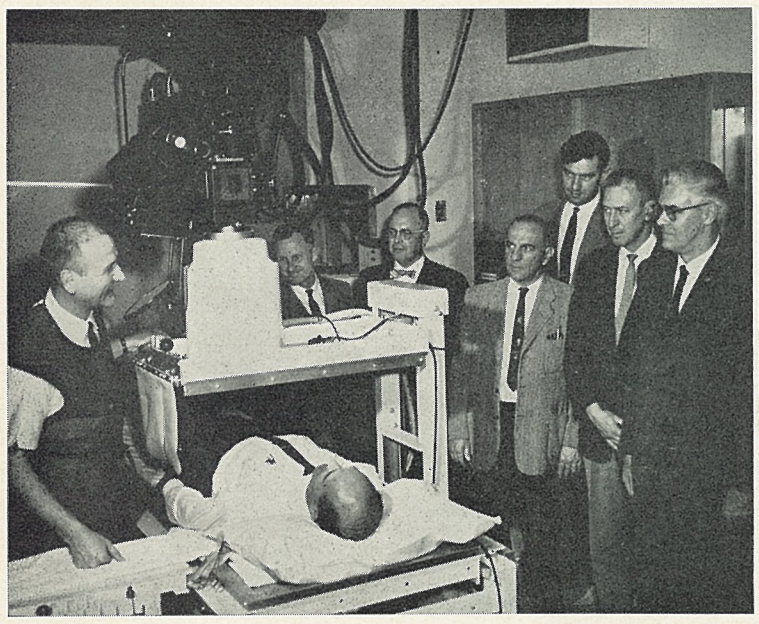
Hustler on Display Armed Forces Day

A General Dynamics B-58 joined other late model craft as targets of trigger-happy camera bugs at Armed Forces Day open house at Edwards AFB, Calif., last weekend (May 19-20).

Besides the Fort Worth-built Hustler, such planes as the B-52H intercontinental bomber, T-38 Talon supersonic trainer, X-15 manned research rocket planes were available for picture backgrounds in a relaxation of the no-picture-taking rule.



LOOKING AHEAD—Top photo: committee members considering possible Management Club for GD/Electronics at Rochester examine brochures. From left are Lewis A. Corwin, Warren Bastian, Paul M. Neuman, Sigurd Swanson. Lower photo: similar study is under way at GD/Telecommunication as Harvey Leach, Earl Roesch, Roy Goetzman look over publication of GD/Astro club.



DRY RUN—GD/Astro and GD/Convair Con-Trib committee members watch demonstration of motion picture X-ray equipment in heart center of Sharp Memorial Hospital. Left to right are Dr. W. J. Kuzman, heart center director; E. R. Fink and J. K. Field, GD/Convair; David Haslanger, J. T. Schultz, J. R. Mitchell, GD/Astro; Dean Strange, GD/Convair. Keith Sears of GD/Astro takes part of patient.

Astro, Convair Con-Trib-Clubs Unite in Heart Center Donation

Two General Dynamics Corporation Employees' Con-Trib-Clubs have donated $8,000 for new equipment being installed in the heart center at Sharp Memorial Hospital.

Checks for $4,000 each from GD/Astronautics and GD/Convair Con-Trib-Clubs to the San Diego County Heart Association have been applied on purchase of motion picture X-ray and research equipment.

Dr. W. J. Kuzman, director of the heart center, said a mirror viewer on the new equipment enables a doctor to see X-ray pictures of a patient's heart action while a catheter is being inserted into the heart chambers through an artery in the arm. Motion pictures can be made of the whole procedure, including tracing of an inert liquid released in the heart through the catheter tube.

In a few minutes, a doctor can study 35 mm motion pictures as an aid in diagnosis and surgery. The former method, using several X-ray negatives, took about an hour-and-a-half. It takes no longer than 15 minutes now for a heart specialist to study action pictures of the heart.

Total cost of the new equipment is $45,000. Of this amount, GD/Astro and GD/Convair Con-Trib-Clubs have so far donated $18,000. Major units include an X-ray generator, a nine-inch X-ray image intensifier, a 35 mm motion picture camera, a catherization table, and film processing and projection units.

Special Spanish Course Offered Convair-Astro

A special course in Spanish, slanted specifically for travelers, will start June 5 under CRA-ARA sponsorship.

Jim Hardison, instructor, said that the nine-week course is open to GD/Convair, GD/Electronics, and GD/Astro people free of charge, with no textbooks required.

Classes will be held once a week on Tuesdays, 7-9:15 p.m., in Room 11, Conference Bldg., Balboa Park. Registration will be taken at the June 5 class meeting.

The simplified language course will deal only with fundamental words and phrases a tourist needs in traveling through Mexico. A complete trip will be simulated with students learning enough Spanish to make transportation arrangements, obtain visas, exchange money, ask directions, order food and lodging.

Slides and maps of Mexico City, Cuernavaca, Taxco, Acapulco, Guadalajara will be studied so that beginners may learn the areas and how to pronounce place names correctly.

A motion picture of an Aeronaves flight tour from Tijuana to Mexico City with stops at Guadalajara and Acapulco probably will highlight one of the June meetings, Hardison said.

And, if enough are interested, students may make good use of their knowledge in an actual trip over the same route the latter part of August.

For further details Hardison may be contacted after 7 p.m. at his home phone, BR-6-5805.

Support Documentation Sweeps Field in First Volleyball Round

Support Documentation swept the field to win first round in the Wednesday League of the current IRC volleyball tourney and went on to take first match in the second half.

The Astro team downed Hounds, 15-12 and 15-9, May 9 in its first match of the number two section of league play. In other Wednesday League matches the same night, Convair Engineers defeated Astronets, 15-6, 15-6, and City Engineers downed NEL by 15-2, 15-10. The NEL team replaces Reliables in league play.

Leading the Friday League is the Convair team, Spacemen. They won from Project Support, 15-9, 15-6, May 4 and beat Park and Recreation by 15-9 and 16-14 the following week.

Park and Recreation defeated Astro Dept. 101 in their May 4 match, with Project Support repeating the same feat the next Friday.

The tournament will wind up the first week in June with final matches for the Friday League set for June 1 and Wednesday League last matches on June 6.

All games are played on Muni Gym courts, Balboa Park, with spectators welcome.

Accountants Elect Three GD/Astro Men

Three General Dynamics/Astronautics men will have active roles in direction of the San Diego Chapter, National Association of Accountants, during the coming year.

J. Ray Tucker heads the group as president following election of officers last week. Erle G. Hill Jr., and Phillip C. MacIntosh were named directors.

Tucker is manager of industrial accounting at GD/Astro. Hill holds the post of controller and MacIntosh is a cost analyst.

GD/Astro, GD/Convair Set Sale Schedule

Salvage yards at GD/Astro and GD/Convair main plants will be open to employee sales on the following alternating Saturday morning schedule:

GD/Convair—May 26, June 9.
GD/Astro—June 2, 16.

Ski Clubbers Win Title in Giant Slalom

GD/Convair Ski Club came back from the annual Giant Slalom Races May 4-5 at Mammoth Mountain with the club championship title.

Six skiing groups took part in events on "race day" Sunday. Competitors represented GD/Convair, GD/Astro, Don Diego, Solar, San Diego, Torrey Pines groups.

Winners of the men's open race were Asbjorn Linge, first; John Fatio, second. They are both members of the CRA group.

Jeanne Greenbaum of Convair club took third place in women's competition. Two San Diego Ski Club women, Gloria Kelly and Jewel Milke, placed first and second.

In the Convair Ski Club race, for members only, Linge took another first, with Fatio repeating a second. Joe Harris, CRA commissioner, was third. Jeanne Greenbaum this time garnered the women's top spot.

Two busloads of GD/Convair and GD/Astro skiers and their friends made the weekend trip. Saturday was spent on the ski slopes and at Hot Creek swimming.

CRA-ARA Ski Clubs will join in their annual dinner-dance at Fisherman's Wharf Cafe Saturday (June 2), when trophies will be handed out.

Social hour will be from 6:30 to 7:30 p.m. with dinner following. Movies of the Mammoth Mountain races will precede dinner and dancing will follow. All ski clubs in the San Diego area are invited, said Harris, who will take reservations at AT-4-0278. Gene Rockafeller of Astro may be contacted for reservations through ext. 2868, Astro main plant.

Gun Club Plans Two-Day Shoot

Marksmen will be drawing beads on turkeys, chickens, hams, even bacon, at a two-day special shoot this weekend (May 26-27).

The CRA Gun Club is planning a real whirlwind affair with "lots of prizes and fun for everyone," said Jack Swank, CRA commissioner.

The skeet, trap, rifle events, open to all shooters, will start at 1 p.m. on Saturday (May 26) and at 9 a.m. Sunday at Gillespie Field Range.

There will be ten target events, spinning wheel events, with a winner in each. After the second win, contestants will be handicapped two added yards.

"Bring your friends, make up your own squad," urged Swank. "There will be no delay in squadding."

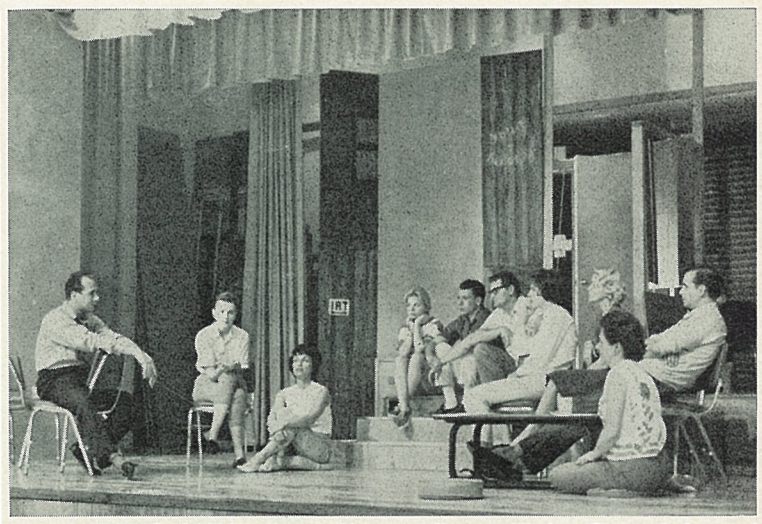
Entrance fees are $1, $1.25, and $1.50. Fifty cents will put entrants' names on a luck target with a wide choice of prizes. Everyone will have a chance to take home a prize, Swank emphasized.

Friday Is Last Day To Enter NMA Golf

This Friday (May 25) is last day for entering the annual NMA Southern California Area golf tourney, set for June 2 and 3 at Torrey Pines.

Gerry Cox, tournament chairman, is taking entries from GD/Convair Management Club members at ext. 1650, Plant 1. Forms can be mailed to him at mail zone 102-0.

GD/Astro club golfers are asked to contact Art King, ext. 3554, Astro main plant.



BREATHING SPELL—Astro Players director John Cone, left, and cast of comedy "Wake Up Darling," discuss first performances of play, in preparation for final showings at 8:30 p.m., Friday and Saturday (May 25, 26) in ARA Clubhouse auditorium.

Astro Players Comedy To Repeat May 25, 26

Impressed by the newly-completed ARA Clubhouse auditorium and pleased with the first play produced there, GD/Astro employees and other community residents viewed the opening of Astro Players "Wake Up Darling" last week.

The comedy by Alex Gottlieb opened for a two-part run May 17. Final performances will be at 8:30 p.m., Friday and Saturday (May 25 and 26).

"Wake Up Darling" is the first of three plays planned by Astro Players, ARA drama group, for the current season.

The two-act situation comedy takes New York City as its setting. It concerns a naive author who sets off a chain of hilarious events through his amorous intentions toward the leading lady of his first Broadway play.

Leading roles are taken by Gretchen Hart-Poindexter, John Brigante, and Richard Elbe, with Annabel Audet, Dixie Quesenberry, Bettye Eagon, Harvey Simpson, Genger Koger, William Quill, Julius Rose and Nancy Shields in supporting roles.

The play is directed by John Cone.

Tickets to the closing performances are available at all employee services outlets, and at the door. Donations are $1 for adults and 50 cents for juniors.

Russell Wins Spring Tennis

Garry Russell downed Jack Movido, 6-4, 7-5, in the final round of ARA's spring tennis tournament to win the men's singles crown, while Frances McBride won women's singles over Flora Cannau 6-2, 6-1.

Men's doubles championship went to Larry Chambers and Ben Cendali, ARA commissioner, who won a 6-4, 6-2 victory over Bill Wright and Erhard Rothe.

In mixed doubles Frances McBride teamed with Movido to defeat Flora Cannau and Cendali in two 6-1 games. Men's consolation winner was Bill Berry who won 6-2, 6-4 over Carl Shuler.

Another tournament will open in mid-June.

Stamp Club Holds Auction Meeting

ARA Stamp Club will hold an auction meeting at 7:30 p.m. tomorrow (May 24) in ARA Clubhouse.

The club has announced plans for a combined exhibit at Del Mar Fair, consisting of a frame (more than 100) of stamps with astronautics or space featured in their designs.

Included will be two souvenir sheets issued by Surinam to commemorate space flights of U.S. Astronaut Shepard and Titov of Russia.

The exhibit is being prepared by ARA Commissioner Art King, Jim Rowley, H. E. LaNois, Don Thompson, Jim Schofield and Bill Bowen with contributions from other club members.

GD/Astro to Select Links Team of 24

Twenty-four members of a team to represent GD/Astro in an inter-division golf tournament with GD/Convair and GD/Pomona June 17 at Gillman Hot Springs are now being selected.

Selections will be made on the basis of participation in monthly ARA Golf Sweepstakes, and players notified in the near future. Those selected but unable to participate have been asked to contact ARA Commissioner John Sentovic, ext. 837.

Next ARA Sweepstakes will be played at Fletcher Hills, June 2 and 3. To enter, call ext. 1111.

Former Apprentices Will Picnic June 3

A picnic for all GD/Astronautics and GD/Convair graduate apprentices will be held at the main picnic shelter, ARA recreation area, from 10 a.m. to 4 p.m., June 2 at San Diego.

Additional information is available from John Sewell, San Diego Plant 2, ext. 397 or Fred Shepard, Plant 1, ext. 2912.

Explorers Visit Tecate Area

Meeting last week, ARA Explorers Club concentrated on tentative plans for a trip to the Tecate area of Baja California this weekend (May 26-27) and reviewed the previous trip to Tumco ghost town near Yuma.

Motion pictures (taken by Jorge Zorrilla) and slides of this expedition were shown at the meeting.

The trip, held late last month, was organized by Andy Piskas, with nearly 60 members participating. The group explored the deserted village, prowled a well-preserved mine shaft, and camped overnight in the desert.

A rattlesnake dispatched by George Hone was cooked in a stew by Paul DuPre, exposing several club members to this "delicacy" for the first time.

Hi-Fi/Music Club To Hear Engineer

A discussion of electronic measuring equipment's relation to high fidelity sound will be featured at a meeting of ARA Hi-Fi/Music Club at 7:30 p.m. tonight (May 23) in the ARA Clubhouse.

Speaker is A. J. Woodington, GD/Astro engineer.

The newly-organized club has conducted Saturday working parties to press its new listening and transcription room in the clubhouse to completion. Once structural work is finished a full array of hi-fi equipment will be installed.

Three speakers discussing the theory of multiplex systems, audio equipment and pre-set programming systems, and the role of antennae and rotors in hi-fi, stereo, and multiplex systems were featured at a previous club meeting.

Sports & Recreation

Lack of Interest Perils Group Travel Program

Although originally instituted as a result of individual requests, the ARA-sponsored group travel program at General Dynamics/Astronautics is facing possible cancellation due to lack of general interest.

Plans called for one trip per month. However, of two trips planned (Las Vegas and Hawaii) only one (Las Vegas) materialized, with the other being dropped because it failed to attract minimum participation.

Facing possible cancellation are trips to Big Bear Lake (June) and the Seattle World's Fair (July). Unless enough employees sign up for each by the deadlines set, June 8 and June 15 respectively, both will be cancelled and no further trips scheduled at this time.

One change has been made in the Big Bear trip plans. Bus transportation has been eliminated, resulting in a reduced rate. The cost is now $11 per person which includes lodgings and meals from Friday (June 15) night through Sunday (June 17) noon.

The Seattle excursion is set for July 21-30 and includes travel, tours, accommodations, Fair admission, etc., for $242 per person. Going north the trip will be via bus with stops at Hearst Castle, San Francisco, Eureka and Salem. Return trip is via air. A $50 per person deposit is required on registering for this trip only.

Employees may sign up for either trip at ARA Clubhouse between 7:45 a.m. and 5:30 p.m., Monday through Friday.

Summer Bowlers Are Sought To Begin League Play Soon

Summer bowlers are still being sought to take part in ARA-sponsored leagues at GD/Astronautics which begin rolling within the next few weeks.

As usual, summer leagues are tailored to beginners wishing to enter bowling activities by establishing averages. However, additional leagues cater to established bowlers. Both mixed and men's leagues are operated. Individuals and teams are welcome.

Scheduled to operate Astro leagues are Clairemont, Parkway, Poway and Frontier Bowls, although leagues at other locations will be established, if interest warrants.

Applications are available through employee services. Information may be obtained by contacting Dixie, ext. 1111.

Anglers Score At Kelp Beds

First ARA Fishing Club charter-boat trips were held recently with two 6 a.m.-to-noon cruises to La Jolla kelp beds.

Otto Wismer and Phil Vincelett arranged for fellow members (with special emphasis on father-son participation) to charter the Sea Biscuit from Mission Bay Sportsfishers.

Eighteen persons took part in a Saturday junket, hooking 80 bonita, 54 bass, three mackerel and a whitefish. Prize of the day was a 26-lb., 8-oz. yellowtail landed by Jerry Hutson, Dept. 967-6.

The Sunday trip had 15 aboard with a catch of 70 bonita, 20 bass, two mackerel and five sculpin.

"We plan similar weekend trips early next month," said T. B. Field, ARA commissioner. "In addition, the club will assist any GD/Astro group in making charter arrangements."

Dancing Class Deadline Near

Monday (May 28) will be the final night for entering ARA-sponsored ballroom dancing classes planned for the summer months.

Initial classes were held May 21. After Monday no additional students will be accepted.

A beginner's class meets from 7 until 8:30 p.m., with an intermediate session following at 8:30 (to 10 p.m.). Both are held on Monday at the ARA Clubhouse. Cost per student is $9, payable on registering for the 12-week course.

Professional instructors teach a well-rounded program aimed at acquainting students with the latest and most popular steps. Those entering the intermediate session must have had formal dance instruction within the past year.

No advance registration is necessary.

Twilight Golf Play Continues

With the first unit of ARA's Twilight Golf program well under way, applications for the second unit (July 10 through Sept. 7) will close June 22.

Entering the second week of play, first unit standings placed the team of B. Rose, Ken Peters and Walt Swinson in the lead among those playing Tuesdays at 4:30 p.m. Second place is held by the team of L. Hanning, "Dutch" Schultz and C. Farnsworth.

Jerry Long, R. Steinwehe and H. Bussard lead those playing Tuesdays at 5 p.m., with Dick Tobias and Hal Napier in second place.

In the 5 p.m., Thursday group, lead is held by C. Rhies, L. Williams, and J. Kiszla, with the team of J. Jones, R. Vukotich and Lou Canter in second place.

All Twilight matches are played at Stardust Country Club. Team entry fee is $20 (green fees not included), payable in advance. Additional information is available from ARA Commissioner John Sentovic, ext. 837.

New ARA Activity, 'Singles Club' Plans Dutch Treat Party

A theater party for Astro Players production of "Wake Up Darling" May 26 has been planned for members of the newly organized ARA Singles Club.

By purchasing a block of seats, the group availed itself of reduced prices offered to ARA activities. Following the play, club members will visit an area night spot for a "dutch treat" party.

ARA Singles Club is designed for single employees, 21 and older. The group recently gathered at the clubhouse for dancing, followed by a pizza party at a local restaurant.

Buster Carlson's ARA Band will play for dancing at the club's next party, 8:30 to 11 p.m., June 9 in the clubhouse.

Additional information on Singles Club activities is available from Gil Hutter, ARA commissioner, ext. 2170, or Maggi Barrows, director, ext. 2832.

SING ALONG—Members of Astro Notes, ARA choral group, are shown during recent rehearsal. Group is rapidly expanding repertoire and will make frequent public appearances during season.

Variety of Discounts Offered at GD/Astro

Savings galore are available to GD/Astronautics employees who seek entertainment bargains at employee services office, Bldg. 8.

Open for sales daily from 11 a.m. to 1 p.m., and between 4 and 5:30 p.m., the office offers everything from theater tickets to missile-age jewelry. Other sales outlets include employee services at Plant 2 (north end of Bldg. 28) and in the administration building at Sycamore Canyon.

Leading in popularity are new white Magic Kingdom Club cards entitling holders to purchase special Disneyland ticket books at reduced rates. Current gold cards expire May 31.

Exchange coupons for Seaforth Landing Sportsfishing entitle holders to $1 off on the regular $5.50 half-day fishing trip, while employees get a 75-cent price reduction on Padres' June 5 game at Westgate Park with an Industrial Recreation Council ticket.

GD/Astro employees save 50 cents on tickets to Ice Capades at Westgate Park May 29 and 30 with exchange coupons now available, and gain 20 per cent discount on tickets to Circle Arts Theater's "Oklahoma" June 3.

Other tickets available at reduced prices include Marineland (adults $2, children 50¢), and the Seattle World's Fair (adults $6, children $3.75).

Outlets also have tickets to the final performances of Astro Players' "Wake Up Darling" to be produced in ARA Clubhouse at 8:30 p.m., May 25 and 26. Donation is $1 for adults and 50 cents for juniors.

Latest addition to sales items is a pin or tie-tack replica of the Freedom 7 Mercury capsule in gold or silver at $1.30. Also available are Atlas missile pins or tie-tacks ($1.30), Atlas lighters ($1.30), badgeholders with ball-point pen and memo pad ($1.50), and color lithographs of an Atlas launch (25¢).

Books for sale include the handsome "Dynamic America," story of General Dynamics Corporation ($7.80), Space Primer (15 cents), and "Goals for Americans" (75 cents).

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TICKETS REDUCED FOR SHAKESPEARE

Season tickets at a reduced rate will be available next week at GD/Astro for the 13th San Diego National Shakespeare Festival opening at Old Globe Theater June 12.

Employees may purchase tickets and also make reservations for the three shows, Taming of the Shrew, Henry IV (part 2) and Othello, between 11 a.m. and 1 p.m., May 28, 29, 31 and June 1 at employee services, Bldg. 8.

Season tickets sell for either $9 or $7.50, depending on seats preferred. They reflect a savings of $1.50 for the three.

Landscaping CRA Clubhouse In Full Swing

Landscaping of western approaches to ARA Clubhouse is in full swing with members of ARA Garden Club turning out in force each Saturday.

Parking strips and areas adjacent to the building have been filled with top soil, and provision made for addition of sprinkler systems following planting.

Working from 8 a.m. to noon May 12, about 15 club members under direction of ARA Commissioner Everett Henderson completed final leveling of the main building's west frontage and set out 125 plants.

The following Saturday they added 30 rose bushes to that area, and planted about 75 additional plants in the curbed area west of the south wing. Also set in place for seasonal decoration as a living Christmas tree was a 12-foot pine.

Evergreens are used as basic plantings with blue, green and variegated junipers, plus tams and pfitzers.

Next project will be planting of the roadside curbing along the west and south sides of the Recreation Area.

Teen-Age Club Dance Scheduled June 2

ARA Teen-Age Club's June 2 dance will be a "stag or drag" affair, according to Commissioner John Hess.

The event will be held in ARA Clubhouse from 7:30 to 11 p.m.

Emphasis will be on casual dress with bermudas or capris suggested for girls and sports clothes for boys. Music will be by Debonaires band.

Each member may bring one guest.

Astro Notes Vote Officers

New officers of Astro Notes, ARA choral group, were installed at the club's recent meeting.

Dixie Flora is new president, with Zoe Harper, secretary-treasurer, Robert Thomas, publicity chairman and Miles Whitlow, librarian.

Jim Rogers serves as director and program chairman, and Betty Phillips is assistant director. Al Phillips is ARA commissioner.

Following installation ceremonies, a potluck supper was held to honor accompanist Janie Ellis who is leaving the group.

Astro Notes meets at 7:30 p.m. each Monday in ARA Clubhouse for rehearsals and a business session. The group makes numerous appearances at ARA events and public affairs throughout the San Diego area.

SANDERLIN WINNER IN MASTER CLASS

Scoring 291 of 300 possible points, Ralph Sanderlin topped all comers in master class competition during .22 police matches held recently by ARA Pistol Club at San Diego Police Pistol Range.

Ronnie Legg captured second place with 289.

Don Smock's 288, trailed by Angrim Carlson's 276, led expert class shooters, while Bill Jungk and Bill Winchell fired 276 and 262 respectively in sharpshooter class. A 258 by Reed White captured marksman class honors, with Ralph Jungk firing 249.

A center fire short national match was won by Legg with 270, with Hal Sicard's 270 second, and 265 by Sanderlin third.

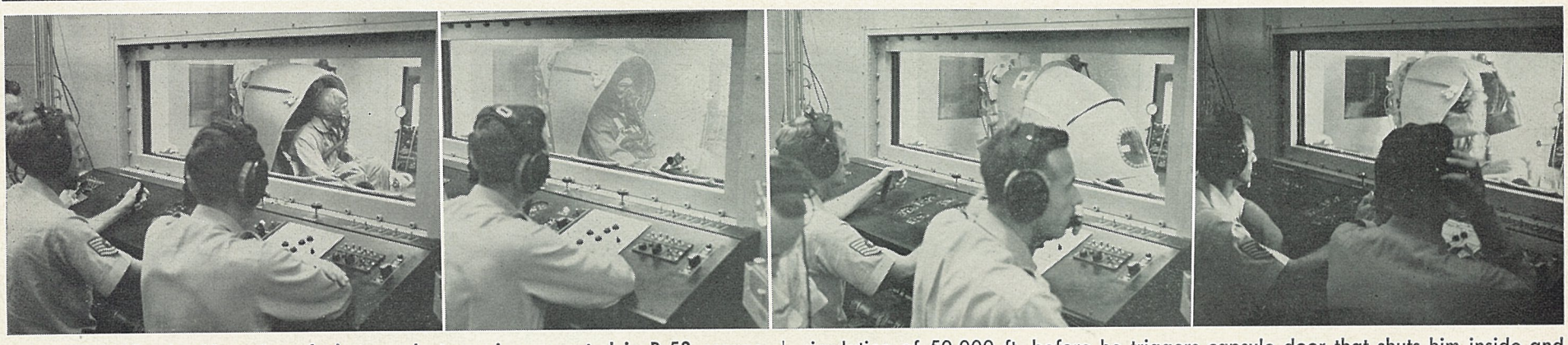
'Photorama' Slides On Meeting Agenda

Slides and prints of activity at Southern California Association of Camera Club's "Photorama" held last weekend will highlight the meeting of Astro Lens at 7:30 p.m., June 3, in the Photo Arts Bldg., Balboa Park.

Nearly 50 members of ARA camera club took part in the annual Photorama event, photographing some 75 models against varied backgrounds.

ARA Commissioner Ken Rinker has announced that "Miss Photorama" may attend the forthcoming meeting of the Astro group to serve as a model.

CLUB CHAMPS—GD/Astro Management Club bowlers Fred Bloschies, from left, Al Cohen, Ralph Trease, Carl Long and Larry Atwell, won high team handicap series in Convair-Astro interdivision tournament. Atwell also won individual handicap series, and Chuck Quintin (second from right) individual scratch series. Tournament co-director Forest Irwin, right, presented trophies.



PRACTICING—In this series of photos volunteer airman seated in B-58 escape capsule inside pressure chamber undergoes simulated conditions of sudden depressurization at high altitude. "Fog" fills chamber during few seconds of actual simulation of 50,000 ft. before he triggers capsule door that shuts him inside and starts own pressure system. B-58 is first plane in which pilot can fly at high altitudes without pressure suit because of self-sustaining capsule.

Volunteers 'Practicing' Survival at 50,000 ft. In B-58 Escape Capsule

High-altitude decompression tests at Carswell AFB are helping usher in an era of "shirt-sleeve flying."

Well-drilled Air Force volunteers are confirming man's ability to operate a B-58 escape capsule if, in an emergency, suddenly subjected to rarified atmosphere of 50,000 to 60,000 feet.

"The B-58 is the first plane in which an airman can fly at these great heights without wearing a pressure suit," said Dr. J. L. Judson, GD/Fort Worth aerospace medical specialist, who is running the program along with Dr. G. E. Holladay, Air Force flight surgeon.

"This is possible because the B-58 capsule has its own pressurization system, which comes on automatically when its telescoping doors are closed.

"Thus the B-58, with its self-sustained capsule, is reversing the trend of heaping on added flight paraphernalia needed to protect the airman in case of emergency at high altitude, where temperatures are sub-zero and there is little oxygen."

In effect, tests simulate sudden loss of pressurization at high altitudes and aim at showing airmen can survive these conditions long enough to activate the escape capsule.

(Incidentally, activating the capsule does not commit the crewman to bailing out, because the aircraft can be flown from within the capsule.)

Phase I testing, conducted from May 1 through May 9, subjected airmen to decompression up to 50,000 feet. Second phase goes up to 60,000 feet.

Airmen were slated to wear regular summer flight uniforms up through 55,000 feet. Between 55,000 and 60,000 feet, they will wear de-activated pressure suits as a safety precaution.

Each "flight" takes about 30 minutes.

After a period of conditioning within the chamber, the volunteer hears the monitoring physician outside start a countdown of "3-2-1-Zero" after which he initiates decompression. The physician's voice continues with "1-2-3-Fire," during which period the volunteer is subjected to rapid depressurization to 50,000 ft. conditions. At any point after "Fire" the volunteer squeezes the capsule handles which trigger the door, encapsulating him and giving him automatic pressurization.

"He is actually exposed to the simulated high altitude conditions following the countdown," Dr. Judson pointed out.

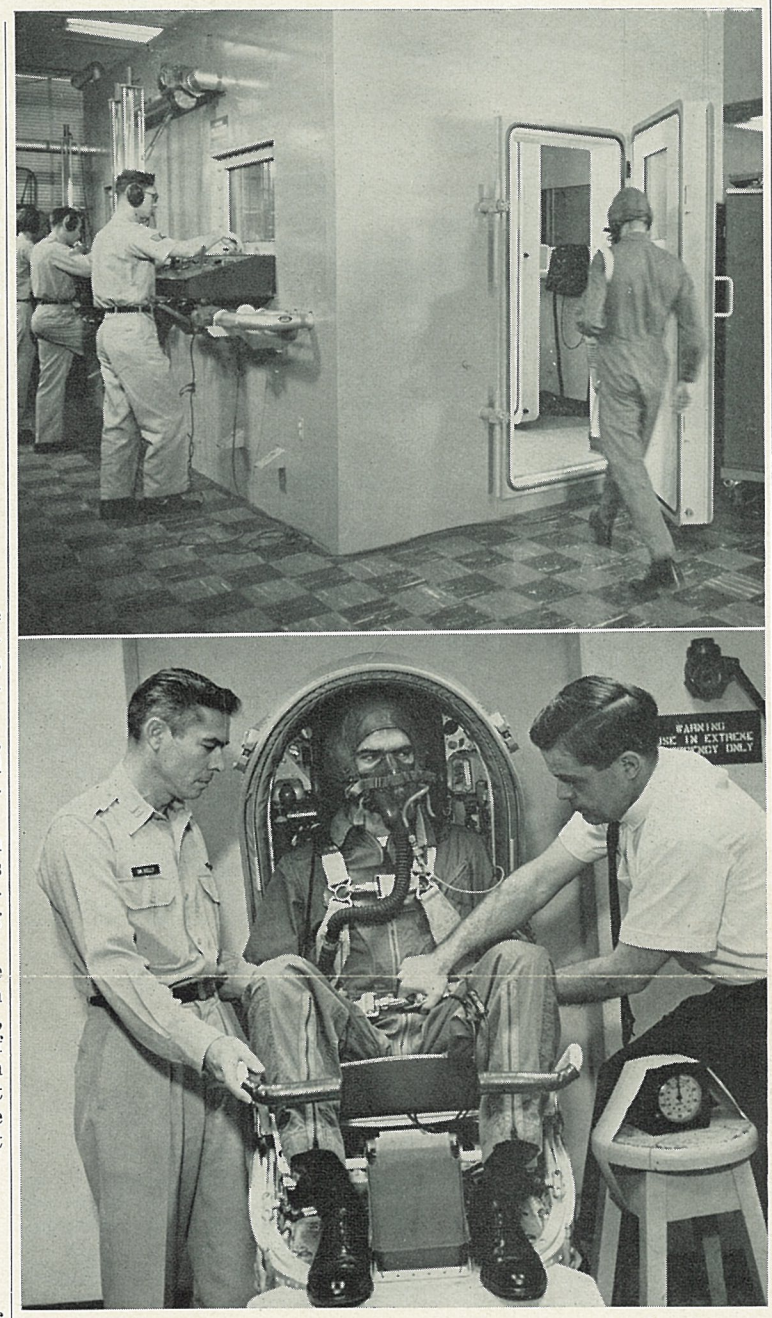
"So far, our tests have indicated that an airman is capable of operating the capsule controls within this critical time period."

Intensive physical checkups are given volunteers immediately after the tests, and at intervals later. This is followed by one-week and one-month follow-ups.

A minimum of 12 volunteers, all of whom have passed rigid physical and psychological screening, are slated to be used.

C. E. Bledsoe, senior design engineer personal equipment, is assisting in the tests at the Carswell AFB Physiological Training Center.

"In addition to determining the airman's ability to react at high altitude," Dr. Judson pointed out, "we're proving compatability of the oxygen and pressurization systems with the human subject — and establishing a confidence level in usage of the capsule at high altitude."



BEFORE AND AFTER—In top photo, volunteer enters chamber for "flight" while below, test over, Dr. R. J. Kelly, Air Force flight surgeon, and Dr. J. L. Judson, GD/Fort Worth aerospace medical specialist, begin extensive physical checkup.

Instrument Society Installs Officers

C. A. Paul, GD/Astro electronic development general foreman, has been installed as president of the San Diego Section, Instrument Society of America.

Other officers include Bill Holmes of GD/Convair, vice president, and Bob Kelley of GD/Astro, treasurer. Jim Ingrahm is a new member-at-large.

Installation came at a May 10 affair at the Convair executive dining room at which Allan Lee, manager of the Stanford Research Institute, spoke.

June 8 will find the Section holding a dinner-dance at Kona Kai. General Dynamics employees interested in attending or taking part may contact Paul at ext. 3923, Astro.

Light Plane Flown Away Successfully From Narrow, Rock-Strewn River Bottom

Flying a light airplane out of a sandy, rock-strewn, tree-rimmed river bed, with less than 300 feet of straight away might seem impossible to most aviators, but veteran pilot Joseph Tarr (Dept. 51, General Dynamics/Pomona) did just that last month.

"We tied the tail of the plane to a tree," Tarr explained. "Then I used full flaps (30 degrees), placed the prop in low pitch, and revved up to full power—2,500 rpms and 27 inches of manifold pressure."

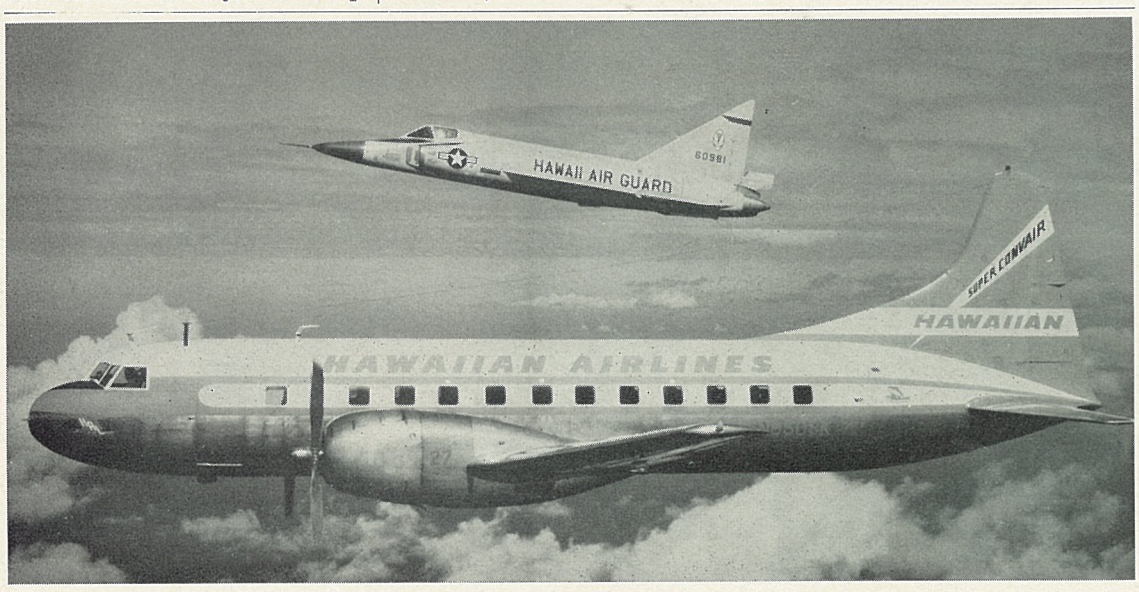
At a signal from Tarr, a helper cut the rope with an axe, and Tarr literally bounced the plane into the air.

Tarr was asked to fly the plane out after one of his flying students made a forced landing in the bed of the Santa Ana River near Riverside.

A pilot for the past 20 years, Tarr estimates that he now has approximately 7,900 hours in the air.

While serving in the Navy during World War II, Tarr became a naval aviation pilot (enlisted) and later qualified for a commercial and an instructors' license.

At present Tarr is teaching evening ground school classes at Kelly School in Rialto, Calif., and has 11 flight students.



CONVAIR SIBLINGS—Hawaiian Airlines Convair 340 and Hawaii Air National Guard F-102 pass in mid-air over Islands with Lt. Col. Robert B. Maguire, chief pilot for Hawaiian Airlines at 340 controls. Col. Maguire also is commanding officer of 154th Fighter-Interceptor Group, HANG, reports Matt Quilter, GD/Convair rep based with 199th FIS, Hawaii.

MOLESKO LECTURES ON SPACE PLANNING

Norman M. Molesko of GD/Astronautics human reliability requirements group (Dept. 146-7) was guest lecturer on human factors application in planning, design and development of advanced man-in-space systems at the University of San Diego recently.

GRADUATE STUDY AWARDS GRANTED

Four $1,000 scholarships for graduate study during the coming year have been awarded by General Dynamics/Astronautics to outstanding candidates for advanced degrees in fields related to Dynamics programs.

Recipients of the annual awards were announced recently by J. A. Croft, chief of educational services.

Winner of his third consecutive grant is Gus P. Tricoles, 1963 candidate for a doctorate in physics at the local University of California campus. Prior to beginning advanced study, Tricoles was a GD/Convair research engineer.

David M. Bulman, formerly employed in GD/Astro digital computer laboratories, receives his second grant for doctoral study in applied mathematics at Johannes-Gutenberg University, Mainz, Germany.

Receiving awards for the first time are Thomas J. Sadowski, studying toward a master of business administration at Stanford University, and James G. Seebold, who will enter Stanford this fall as a doctoral candidate in mechanical engineering.

Sadowski is a former GD/Astro design engineer, while Seebold is presently a research engineer in advanced systems (Dept. 582-1).

Nine to Receive Their Masters

Over two dozen GD/Convair and GD/Astronautics men will receive degrees and certificates at the June commencement of California Western University.

All have been taking courses under the cooperative General Dynamics-Cal Western program.

Master's degrees in business administration will go to Edward Dangler and Norman Tipton of GD/Convair. E. W. Manning and Malcolm Boothby, both GD/Convair, will receive bachelor's degrees in business administration.

GD/Astro men achieving master's in BA are Bert W. Kuty, James D. Mason, Robert P. Parmett, Louis Sahfran, Joseph Timlin, Richard B. Wilson, Eugene Zevin. Bachelor's degrees go to Roy T. Bailey, Michael Dascenzo, John Henry Edwards, Alan Darrock, Dewey Maltese.

Two-year certificates from the School of Business will be awarded Frank Biscak, John Cicalo, Wendell Durflinger, Bernard L. Gammon of GD/Convair; Robert Ames, John F. Baebler, William Cockerell, Joseph Comber, LeMoin Cox, Leonard Mays, all of GD/Astro.

'Dangers in EDP' Told In Harvard Article

An article by L. R. Fiock Jr., supervisor of management analysis section, industrial engineering department at GD/Fort Worth, appears in the May-June issue of Harvard Business Review.

Entitled "Seven Deadly Dangers in EDP," the article deals in depth with the problems of operating electronic data processing programs.

Fiock has been in production control, organization and systems aspects of manufacturing for 14 years.

GD

ASTRONAUTICS EDITION

GENERAL DYNAMICS NEWS

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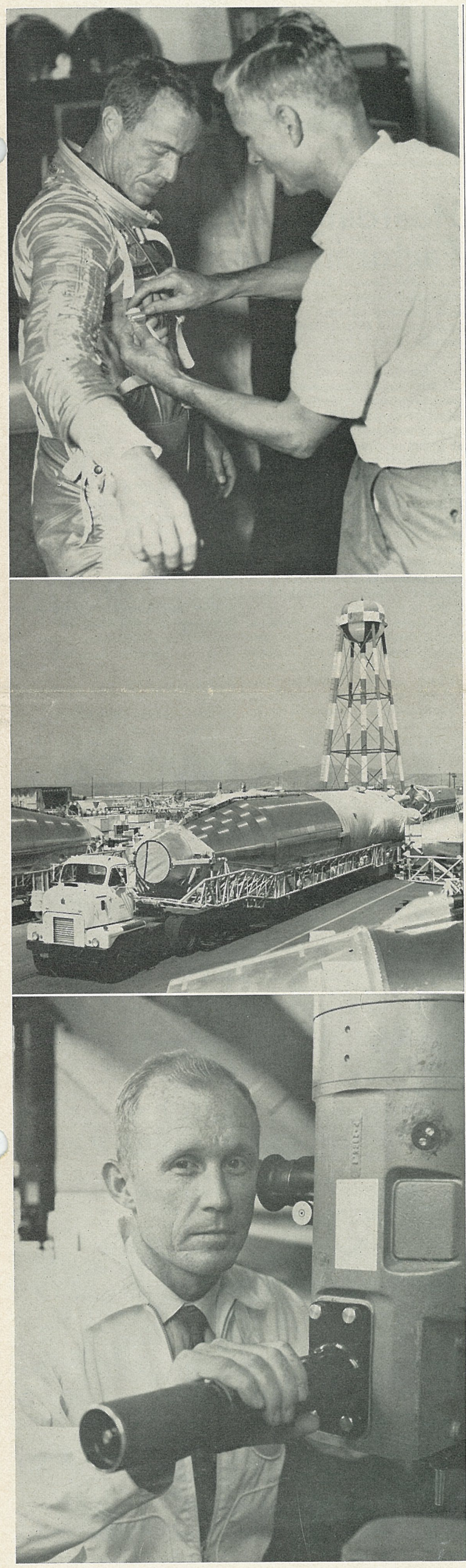


TRIPLE ORBIT—In top photo, Astronaut M. Scott Carpenter adjusts 20-pound aluminum-coated pressure suit prior to orbiting earth, thrust aloft by Atlas missile. Center: 107-D leaves San Diego. Below: Calvin D. Fowler, at periscope, was conductor on launch.

Faultless Atlas Shot Places Scott in Orbit

Dawn risers earlier this month witnessed a second triumph for the nation, and the General Dynamics/Astronautics, Air Force and NASA team which makes up Project Mercury.

Functioning perfectly, Atlas 107-D lifted Astronaut M. Scott Carpenter into earth orbit only 45 minutes behind schedule. (The countdown was halted briefly to permit ground haze at Cape Canaveral to dissipate.)

T. J. O'Malley, GD/Astro's chief test conductor, headed the team of General Dynamics folk at Complex 14, where three months earlier he was test conductor on John Glenn's similar history-making mission.

Complex 14 test conductor for the Carpenter launch was Calvin D. Fowler, GD/Astro veteran with service at both Cape Canaveral and Warren AFB.

Perfect Atlas performance came as no surprise to those thousands of GD/Astro employees who contributed to design and manufacture of the modified D-series launch vehicle at San Diego, or to those who checked and rechecked it exhaustively after its arrival in Florida.

(The Mercury-Atlas used in the Glenn flight received more than 20,000 manhours of testing after delivery to Cape Canaveral, with over 100 volumes of test reports documenting its readiness before launch.)

The countdown flowed smoothly to "T"-minus-three seconds, when the powerful engines ignited.

For those three seconds the Atlas roared on its stand as the engines drove to full power. Then, released, it lifted with ever-increasing velocity toward its target "window," 100 miles above the earth and 500 miles down the Atlantic Missile Range.

At the second it pierced the "window' (accuracy for striking this invisible bull's-eye in space must be within one-third mile), sustainer and vernier engines shut down, and one second later the Mercury spacecraft with Carpenter aboard separated for its three-orbit independent flight.

Atlas 107-D had accomplished its mission.

Gen. Estes Praises Atlas Performance

Following the recent Project Mercury flight, Lt. Gen. Howell Estes, deputy commander for Aerospace Systems, wired congratulations to Astronautics President J. R. Dempsey.

Referring to Atlas 107-D, he stated "the excellence of this booster on delivery, its careful handling and checkout, the flawless countdown, and the near perfect powered flight are clear evidence of your outstanding efforts."

Atlas, Azusa, ASIS, Team

While indexing tomorrow's history books, chroniclers may inscribe four words with special meaning for General Dynamics folk at the head of the alphabetical list.

Astronautics, ASIS, Atlas, and Azusa — each with reference to two dates: Feb. 20 and May 24, 1962.

On the first of these dates, a GD/Astro test conductor touched the button which sent Mercury-Atlas 109-D and Astronaut John Glenn into earth orbit.

On May 24, another Astro test conductor launched Atlas 107-D with Mercury Astronaut M. Scott Carpenter aboard.

Space pioneers Glenn and Carpenter both had "insurance" afforded by Astronautics-built ASIS (Abort Sensing and Implementation System), an ultra-compact "electronic brain" to detect the slightest problem in launch and eject the spacecraft to safety in 30 to 50-thousandths of a second in case of trouble.

Both flights were tracked (as is nearly every missile launched from Cape Canaveral) by the Azusa precision tracking system —also an Astronautics product.

SECURITY FOR SALE—GD/Astro's Marilyn Clark demonstrates how five quarters per week toward U.S. Savings Bonds reaps bonus of cash for future. Increased employee participation in bond purchases through payroll deduction plan is subject of campaign June 11-15.

Bond Buying by Payroll Urged as Easy and Safe Way to Earn Security

"Underwrite your country's might—while saving for your future."

This slogan will keynote a campaign for employee purchase of U. S. Savings Bonds by payroll deduction at General Dynamics/Astronautics, June 11-15.

Some 34 per cent of GD/Astro employees are presently enrolled in the payroll deduction plan for regular purchases. They have authorized the company to withhold at least $1.25 per week (hourly employees) or $2.50 per pay period (salaried personnel) as part of a regular, personal savings program.

During the current campaign, all employees not enrolled in the plan will be contacted by supervision. Union representatives will join in advising them of the program's features.

Each employee contacted will receive literature detailing the program, and a data processing card on which to indicate whether or not he wishes to participate. To facilitate records keeping, he will be asked to return the card regardless of his decision.

Savings Bonds earn 3¾ per cent interest compounded semi-annually when they mature in seven years, nine months.

Like cash, they can be redeemed quickly and easily after two months from issue date. Unlike cash, bonds are replaced if lost, stolen or destroyed.

And they grow! Savings of only $2.50 per week in three years increase to $405, in five years to $703 and at maturity to $1,150.

"Every cent put in the bond plan comes back with interest," said J. R. Mitchell, chief of employee services, administering the campaign.

Violations of Lane Traffic Reported

San Diego Police have noted increasing numbers of traffic violations among motorists using Kearny Villa Road west of GD/Astronautics main plant to Aero Drive.

This portion of Kearny Villa Road is marked in three lanes. From 6:30 to 8:15 a.m. weekdays, two lanes are posted for northbound traffic exclusively. From 3:15 to 5:30 p.m., posting is changed to permit two lanes southbound.

At other times, the center lane is used for passing under safe conditions in both directions. Speed limit is 45 mph throughout.

TREASURE TROVE—Left: scrapped band saw blades (representing month's consumption) cost $4,800, approaching price of Thunderbird on which Mona Martinez is perched. Center: Beulah Rowlinson holds $360 worth of crimping tools which, if hoarded, must be replaced. Right: in termination tool crib Sam Kelly sorts $400 worth of perishable items hoarded by employee. G. A. Grossaint heads a campaign to slash hoarding and misuse.

Log Book Entries

Service Emblems

MAIN PLANT

Service emblems due during the period June 1 through June 15.

Twenty-year: Dept. 141-1, Stephen Teggart; Dept. 401-5, J. W. Hooker; Dept. 402-1, H. H. Bodwell.

Fifteen-year: Dept. 100-0, Arvella D. Wilkinson; Dept. 290-2, D. G. De Vlieg; Dept. 305-0, R. S. Atkinson; Dept. 454-0, T. R. Christoff; Dept. 539-8, H. B. Farrar; Dept. 967-4, A. C. Ward.

Ten-year: Dept. 125-0, R. H. Ries; Dept. 154-2, S. C. Denike; Dept. 191-0, H. E. Wilson; Dept. 193-1, L. G. Egerer Jr.; Dept. 210-0, E. F. Balcewicz; Dept. 222-1, Juanita T. Van Dusen, K. J. Walker; Dept. 290-3, H. E. Micken; Dept. 321-5, Margaret B. Robinson; Dept. 335-3, A. W. Bradt Jr.; Dept. 343, P. F. Mann, H. G. Thompson; Dept. 344-2, Robert Mitchley; Dept. 351-3, E. F. Ellis; Dept. 510-5, Erik Lindkvist; Dept. 535-0, D. J. Sullivan; Dept. 541-3, K. T. Younghusband; Dept. 551-9, R. C. Onstad; Dept. 580-6, R. A. Nau; Dept. 581-4, J. R. Thayer; Dept. 756-0, T. I. Jaramillo; Dept. 771-0, J. W. Thompson; Dept. 811-2, H. H. Lindeman; Dept. 831-1, William Hoffmann; Dept. 966-3, R. O. Barkdoll; Dept. 971-6, H. A. Eaton; Dept. 972-0, J. F. Meller Jr.

ALTUS AFB

Twenty-year: Dept. 617-7, J. T. Dearing.

Fifteen-year: Dept. 617-3, F. L. Briley.

Ten-year: Dept. 617-3, T. E. Stark.

LINCOLN AFB

Ten-year: Dept. 616-6, R. C. Hawkinson.

PLATTSBURGH AFB

Twenty-year: Dept. 620-4, B. P. Paul.

SYCAMORE

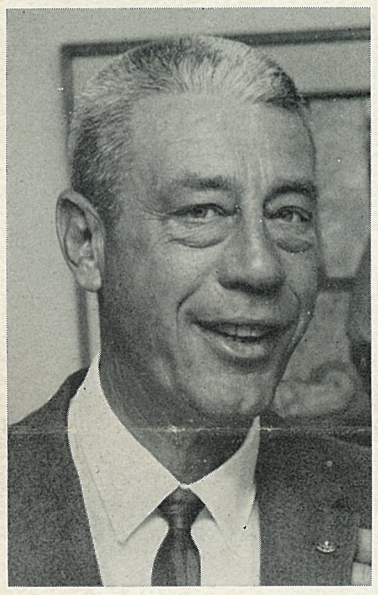
Ten-year: Dept. 573-3, E. W. Pagel.

VANDENBERG AFB

Ten-year: Dept. 576-3, N. W. Miller.

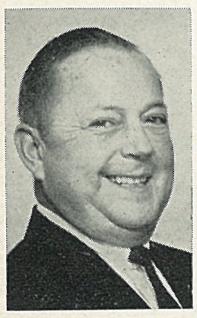
WALKER AFB

Fifteen-year: Dept. 619-7, Eugene Weems.



J. P. Hopman, GD/Astro factory manager—fabrication and assembly, Dept. 700-0, received 30-year service emblem recently.

At left is Harold M. Seitz, Dept. 783-0, and at right is Don L. Kimball, Dept. 170-3. Both received their 25-year service emblems recently.



Michael McNally, Dept. 953-2, completed 25 years of service not long ago.

Promotions

MAIN PLANT

Promotions to or within supervision effective May 21.

Dept. 101, Data Processing: To data processing supervisor, W. Ciofas, L. G. Egerer Jr.

Dept. 130, Industrial Relations: To manager of employee and labor relations, J. L. Budros. To technical recruiting supervisor, B. L. Dobler.

Dept. 140, Reliability Control: To offices services supervisor, S. D. Koulaxizes.

Dept. 151, Change Administration: To change administration supervisor, W. H. Shell.

Dept. 154, Resources Planning & Control: To resources planning asst. supervisor, R. W. McGuire.

Dept. 155, Estimating: To chief of estimating, L. Grant.

Dept. 305, Support Administration: To support data systems supervisor, W. B. Ambrose.

Dept. 322, Support Publications: To support publications asst. supervisor, E. S. Perry.

Dept. 324, Field & Service Engineering: To field engineering asst. supervisor, T. L. Tanna.

Dept. 333, Off-Site Logistics: To support logistics asst. supervisor, P. M. Brown, M. Aker.

Dept. 337, Support Documentation: To parts documentation asst. supervisor, C. F. Lehr, P. A. Moallankamp.

Dept. 578, Field Test Engineering: To flight test group engineer, R. M. Kohns.

Dept. 781, Electronics Manufacturing: To asst. foreman, M. Alianelli.

Dept. 831, Material Control: To material control supervisor, L. H. Thoulion.

EDWARDS RS

Dept. 975, Centaur Operations: To guard lieutenant, A. A. Coleman.

LINCOLN AFB

Dept. 616, GD/Astronautics Operations: To production control foreman—base, V. W. Walsh.

PLATTSBURGH AFB

Dept. 620, GD/Astronautics Operations: To chief of industrial relations—base, C. F. Holmes.

WALKER AFB

Dept. 619, GD/Astronautics Operations: To chief of material—base, W. B. Watkins. To production control foreman—base, C. M. Box.

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Tuition Refund Policy Changed

A major change in tuition refund policy at General Dynamics/Astronautics, effective with the up-coming summer semester, has been announced by Jack Croft, chief of educational services (Dept. 130-3).

Under the new policy, tuition for general education courses required for degree programs (formerly paid if the degree was in a job-related field) will no longer be refunded.

Reimbursement is made only for job-related courses or those considered "of benefit to the company" (courses not directly related to the employee's present job but which equip him for positions of more responsibility of a higher skill level).

Other tuition refund regulations are unchanged. Employees may receive refunds up to $150 per year for college-level courses completed at an accredited school with "C" grades or better. Refunds are not made for correspondence courses or commercial business school instruction.

Students must submit a "Request for Tuition Refund" form to educational services within three weeks after the class starts. More information is available from GD/Astro educational services offices at Plant 71, Plant 1 and Plant 2.

Electronics Assoc. Elects C. F. Horne

Charles F. Horne, president of General Dynamics/Pomona and General Dynamics/Electronics, last month was elected president of the Electronics Industries Association.

His election came at the quarterly EIA directors' meeting in Chicago. He succeeds L. Berkley Davis, vice president and general manager, Electronics Components division, General Electric Co., Owensboro, Ky.

Accounting Manager Elected by Society

John B. Morgan, GD/Astronautics manager of off-site accounting, has been elected national secretary-treasurer of the National Society for Business Budgeting.

The society is a nation-wide professional organization for advancement of financial planning and budgeting science. Morgan will take office July 1.

Births

MAIN PLANT

DANES—Daughter, Kathleen, 5 lbs., 9 oz., born May 16 to Mr. and Mrs. Donald Danes, Dept. 547-5.

PLATTSBURGH AFB

DU BEAU—Daughter, 6 lb., 4¼ oz., born May 12 to Mr. and Mrs. Ron DuBeau, Dept. 620-4.

KEITHLEY—Son, Robert Merlin, 8 lb., ½ oz., born May 23 to Mr. and Mrs. M. C. Keithley, Dept. 620-5.

WALKER AFB

BRICKER—Daughter, Laura Ann, 5 lbs., 2 oz., born May 16 to Mr. and Mrs. R. P. G. Bricker, Dept. 619-0.

SIMPSON—Daughter, Barbara Ann, 7 lbs., 1 oz., born May 18 to Mr. and Mrs. J. P. Simpson, Dept. 619-6.

Deaths

ALTUS AFB

KENDALL—Thomas F. Jr., Dept. 617. Died May 26. Survived by wife, Leonore, and daughters Mary Ann and Kathryn.

DYESS AFB

DAVIDSON—Tommy P., Dept. 618. Died May 23. Survived by son, John.

Hoarding Held Major Factor in Tool Costs

In 1958 General Dynamics/Astronautics began operations at its new Kearny Mesa plant—and spent nearly $1.4 million on perishable tools.

By 1961, the average tool cost per manhour worked (including off-site bases) was down by 60 per cent, but dollar costs had edged over the $1.4 million mark due to increased employment.

Reducing the high total cost of perishable tools—normally low life expectancy hand tools such as drills, reamers, taps and dies, etc.—has long received top level attention at GD/Astro.

Recently President J. R. Dempsey appointed G. A. Grossaint, chief tool engineer, as division perishable tool monitor, in an increased effort to slash these costs to a minimum.

"Those who use perishable tools can be of greatest service in reducing GD/Astro's expense in this area," said Grossaint. "Tool service administration (Dept. 460) rigidly controls issuance of all perishable tools, but their care and conscientious use after issue depends on the individual employee."

Grossaint singled out "hoarders" and careless tool users as major factors in high perishable tool expense.

Hoarders, he explained, are "tool collectors" who take tools out of circulation by storing them in personal tool boxes instead of returning them to tool cribs when no longer immediately needed.

(Each production employee is issued five to 10 "tool checks" when reporting to his job. Each authorizes him to draw special tools from the tool crib in his area for temporary use. When tools are turned in, tool checks are returned to the employee for reuse.)

Seriousness of the "hoarder" problem is illustrated by the case of one employee who recently turned in more than $400 worth of unauthorized tools upon leaving the company.

"Under the existing system tools are readily available to those who need them," Grossaint explained. "When tools are hoarded out of circulation, we must buy more to insure their availability."

Misuse accounts for another major perishable tool expense.

Recently a package of 17 torque wrenches valued at $1,352 was returned to tool service administration from an off-site base where subcontractor employees had substituted them on a job calling for "breakaway" wrenches. Damage to the set was $1,046!

"GD/Astro supplies top-quality tools which give maximum service on the jobs for which they are designed," Grossaint said. "When the wrong tools are used for a job, both tools and craftsmanship suffer."

Not all perishable tools are stocked in the 13 tool cribs at GD/Astro's main plant, at Point Loma and Sycamore Canyon, Plants 1 and 2, and off-site bases.

However, a recent inventory of cribs alone showed tools valued at $758,000, with price tags on individual cribs running from $10,000 to $112,000.

"Tools are big business here," Grossaint concluded. "Conscientious and intelligent care and use of tools is a means for each employee to contribute to GD/Astro's competitive position in the aerospace industry."

Astro Wives Plan Monthly Luncheon

Astro Wives' Auxiliary will hold its monthly luncheon and business meeting June 20 at Valley Ho Restaurant west of Mission Valley Center.

Social hour starts at 11:30 a.m. with luncheon at 12:30 p.m.

Guest speaker is Deputy Fire Marshal D. E. Lewis of the San Diego Fire Prevention Bureau who will discuss home fire safety.

Reservations may be made through June 18 with Peggy Ferriera, BR-3-7634.

HOSPITAL AID—H. Wayne Cleeton, Children's Hospital staff member, and Deborah Suba, 8, accept $2,000 check from E. A. Schiappa (IAM) and W. B. Ramsey (EAA), members of GD/Astro Employees' Con-Trib-Club board. Gift was presented to provide patient services at hospital.

Tapes 'Trouble Shoot' Hustler Systems by Speedy Mobile Tests

Air Force and GD/Fort Worth are using automatic tape testers to insure rapid turn-around flights for the ultra-sophisticated B-58 Hustler.

Carswell and Bunker Hill AFB airmen can refer to a technical library with over 400 tapes. They are used in four mobile testers—used to check an entire system—and in component-checkers in the electronic shops to pinpoint defective circuits.

The automatic tape testers are used on the Hustler's more complex systems. They can check out systems automatically in a matter of hours, an operation that would often require days using manual methods.

"Using a tester, for example, we can check out the fire control system in about 85 per cent less time than required by manual methods," said S/Sgt. Sam Alston, a shop supervisor at Carswell.

Other systems checked with mobile testers are the military navigation, bombing/navigation, and flight-control.

Mobile trailers are used to detect "no go" conditions in a system's Line Replacement Unit (LRU), electronic "packages" which comprise the system and can be removed much like a cabinet drawer.

Another tape is then applied to an LRU tester in the shop to pinpoint defects within the package.

Used in conjunction with the tape in each test are manuals which detail precisely what to do during any phase of the test.

Supplying the tough mylar tape—nearly 3,200,000 feet of it during the past 15 months—is the tape service unit center at GD/Fort Worth.

"We furnish the original tape, along with revisions, to Air Force and other involved people," said D. H. Anderson, tape service unit coordinator. "We have a complete record of virtually every test and every operational tape in existence."

Another important tape service unit function is to check the production tape against the master unit. Pridefully, the center can boast of never having sent out a "non-conforming" tape—representing billions of punched holes.

Service publications at GD/Fort Worth furnishes operating manuals which go with each tape.

The design group of the aerosystems section of engineering initiates action, deciding how to perform tests and how to program this intricate information onto tapes.

"Increased complexity of modern weapon systems such as in the B-58 has made it necessary to create this entirely new concept of testing," said R. H. Dietz, senior aerosystems engineer.

"We realized back in 1957 that we would need a checkout system for the B-58 which would not only tell whether the system was functioning properly, but also indicate the location of a fault and furnish simple maintenance instructions for correcting it."

Dietz stated that GD/Fort Worth engineers are now formulating methods for using general purpose digital computers to program test tapes.

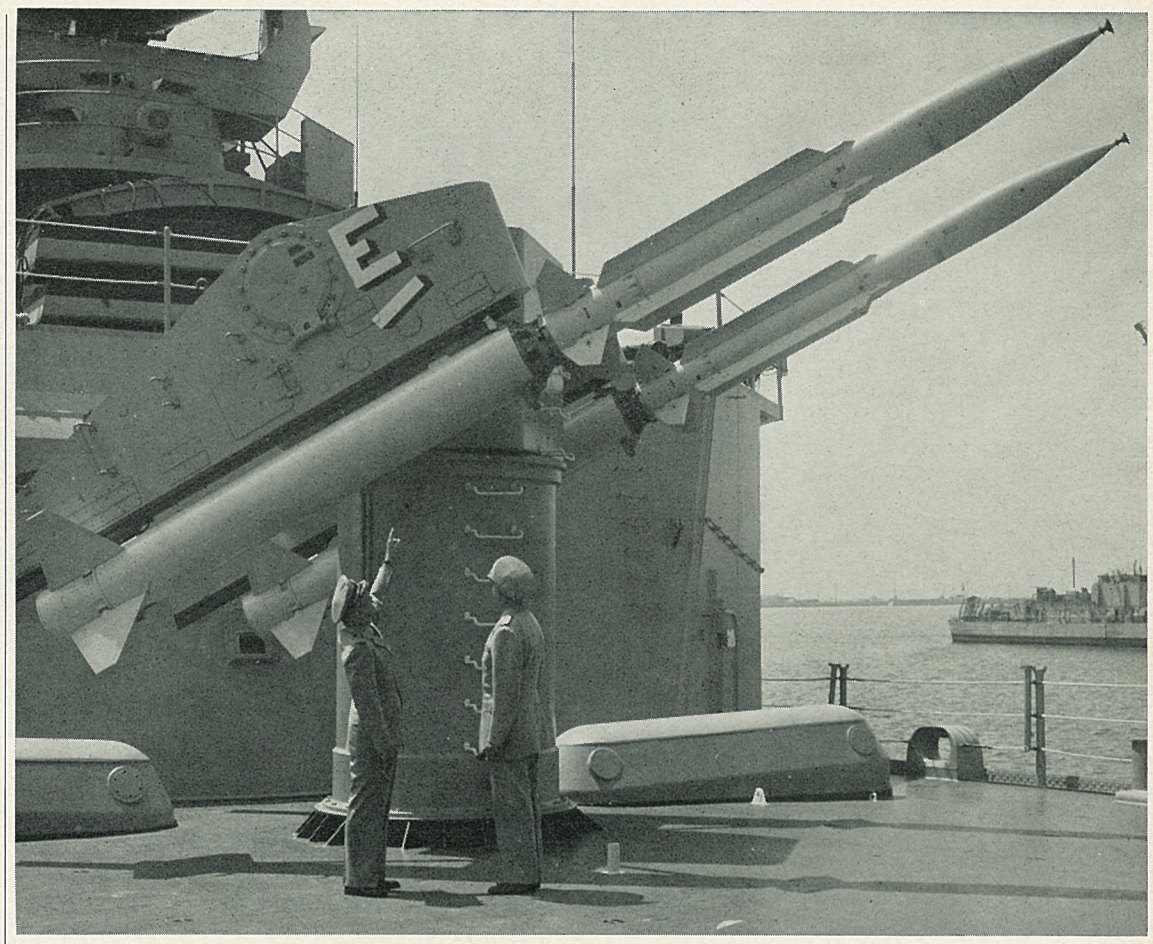
"Techniques are now being investigated to allow the engineer to write out word statements to describe each test," Dietz said.

"This eliminates the need for coding and decoding into tester language. Word statements are then fed into the IBM 7090 in the engineering computer lab, and the computer automatically punches the required master tape."

Tests are ordinarily run after each Hustler flight on which a squawk is reported—and at other routine intervals.

HALLSE TO PRESENT SYMPOSIUM PAPER

R. L. Hallse, Dept. 6, General Dynamics/Pomona, was scheduled to present a paper this week at the ASD-OSU Electromagnetic Window Symposium at Ohio State University, Columbus, Ohio. Subject of the paper was "Slip Cast Fused Silica Radomes."



DOUBLE "E"—Capt. B. D. Voeglin, commanding officer of USS Providence, and Rear Adm. K. L. Veth, Commander Mine Force, U. S. Pacific Fleet/Commander Naval Base Los Angeles, inspect hash-mark on Terrier missile launcher, signifying warship's second "E" earned in fleet competition. Adm. Veth was ship's first skipper after recommissioning in 1959. Providence soon will become flagship for Commander Seventh Fleet in Western Pacific.—U. S. Navy photo.

Course to Deal With Control Techniques

A GD/Astronautics PERT expert will instruct a new course in Advanced Program Control Techniques during summer session of University of California Extension in San Diego.

Robert M. Jirgal, assistant supervisor in the base activation PERT group at GD/Astro, will review current programming techniques and their application in industry as management procedural tools. The PERT (Program Evaluation Review Technique) will be emphasized.

Course opens June 26 and will continue twice a week, on Tuesdays and Thursdays, 7:30-9:30 p.m., in Room 302, Roosevelt Jr. High School. Enrollment may be made through Extension office, 1221 Fourth Ave., San Diego.

Hustler Crewmen Checked Out In Water-Bailout Techniques

B-58 crewmen from GD/Fort Worth flight department and Air Force acceptance office recently practiced "bailout" over water at the U. S. Naval Air Station, Grand Prairie, Texas.

R. L. Johnson, manager of flight, and Grover Tate, project flight engineer, instructed the three-hour course, which included dropping from a crane into a lake.

Each conferee went through a routine of releasing a chute harness, dropping into water, inflating a Mae West, and inflating and boarding a survival raft.

Jack Blackmon, who was shot down over the Pacific in World War II while a B-29 flight engineer, demonstrated latest water-bailout techniques.

In the group from GD/Fort Worth were Tate, Val Prahl, Fred Voorhees, Vince Kane, Fred Hewes, Norm Stranberg, Mike Keller, Dale Ford, Max Runyan, and Blackmon.

Air Force flight acceptance crewmen present were Lt. Col. J. B. Thomson, Maj. C. R. Keogh, Capts. T. H. McMullen, C. W. Boyd, R. E. Clark, and N. H. Lane, C/M/Sgts. G. W. Hubbard, and F. C. Monte, and M/Sgt. F. E. Pulley.

General Dynamics Men Pass State Bar

General Dynamics men, now qualified to practice law in the state of California, include two from San Diego divisions and one from Pomona, following recent notification.

J. A. Moore, legal counsel for GD/Electronics at San Diego; L. B. Case, material adviser at GD/Convair; and B. Ousley of GD/Pomona's legal staff, have passed the 1962 spring examination of the California State Bar.

Successful candidates will be certified by bar examiners at ceremonies before the state Supreme Court in Los Angeles June 7.

NEW ZEALANDER TOURS FACILITIES

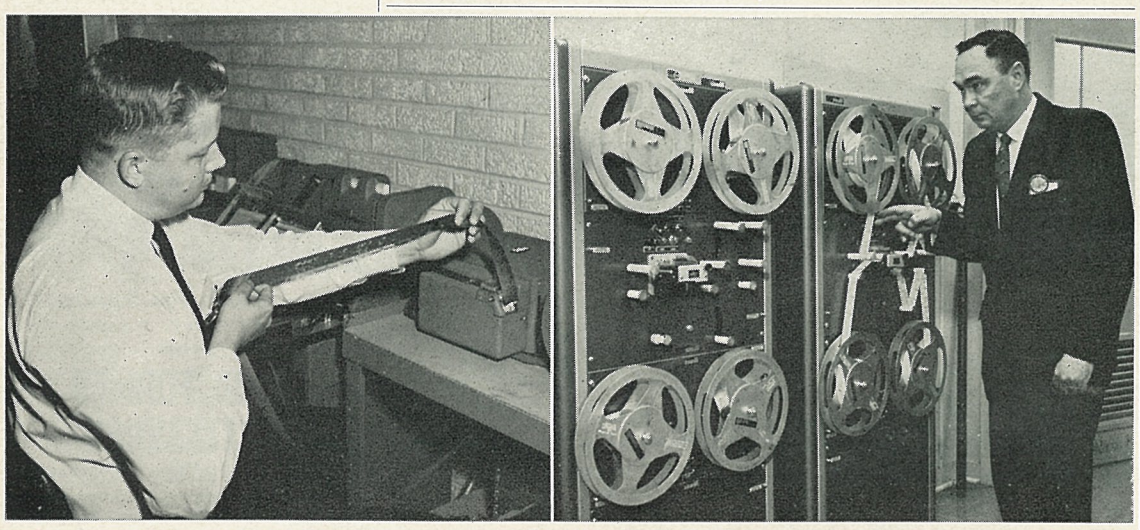
A member of the New Zealand Parliament spent a couple of days last week (May 31-June 1) at General Dynamics facilities in San Diego.

The Hon. Norman Eric Kirk, accompanied by Miller Smith of Canadair Limited's Los Angeles office, were welcomed and briefed on the General Dynamics organization by J. H. Famme, GD/Convair president, and R. A. Neale, GD/Convair vice president and general manager.

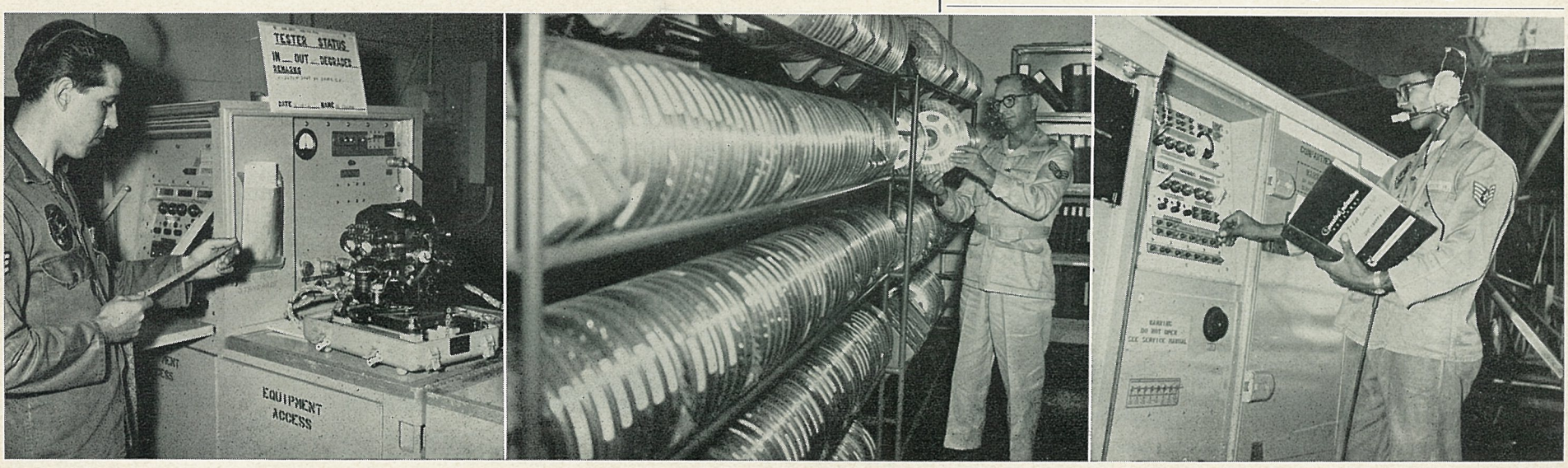
R. L. Runnalls of engineering flight test gave a presentation on the Convair jet airliners and W. W. Lynt of communication directed a tour of the GD/Convair plant.

Kirk was shown the GD/Electronics new electronic manufacturing area by GD/E general manager, William Lawrence, at the June 1 open house.

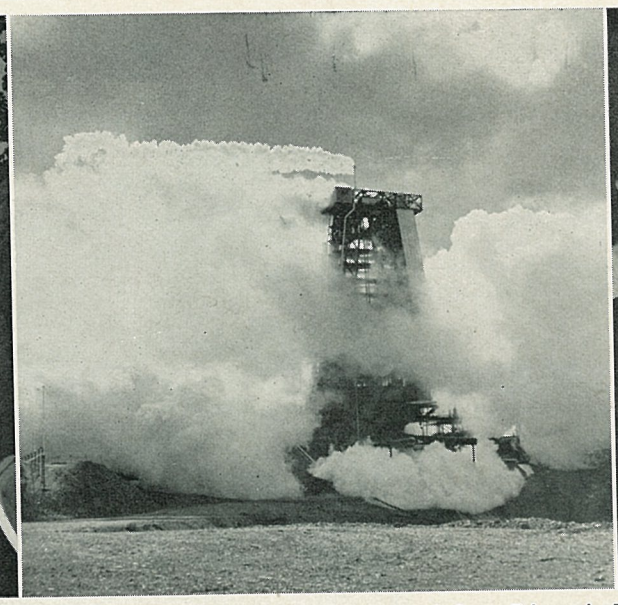
He is in the country as a guest of the U. S. Department of State as a participant in the Foreign Leader Program.



TAPE TOWN—GD/Fort Worth produces B-58 "check up" tapes at division's tape service unit center. At left R. H. Dietz, senior aerosystems engineer, holds master tape, from which other tapes are made, as it emerges from 046 tape card punch in computer lab. At right, D. H. Anderson, center coordinator, demonstrates system that insures copies conform to master.



TAPE TESTING—In 43rd A&E Maintenance Squadron Library at Carswell AFB, Fort Worth, A/1c Leo LaValley (center) keeps track of more than 400 tapes used to trouble-shoot aircraft systems. At left A/1c Coleman Keith tests B-58 fire control unit in electronic shop, while at right S/Sgt. Robert L. Carter operates mobile tester to check fire control unit on front line Hustler. Note manual that explains each phase of operation.



AROUND THE BASES—Left: K. E. Newton, GD/Astro manager at Vandenberg AFB, second from left, and Shirley Nixon, Dept. 576-5, present $2,320 gift from Employees' Con-Trib-Club to John Hanna, representing Lompoc Community Hospital, Dr. Joseph Ziemba, Sisters Hospital, Joseph Sesto Jr., Santa Maria Heart Fund, James Wycherley, Santa Maria County Hospital. Center: shrouded in steam, GD/Astro test stand 1-1 at Edwards RS is shown at end of hot firing. Astro work force at Edwards now is part of Centaur organization. Right: B. G. MacNabb, GD/Astro operations manager at Cape Canaveral, presents Lt. Col. John Glenn with mounted "P-609" plug which separates as Mercury-Atlas lifts off for space. Memento was presented at Cocoa, Fla., dinner for all Astronauts.

Ceremonial Tea Served

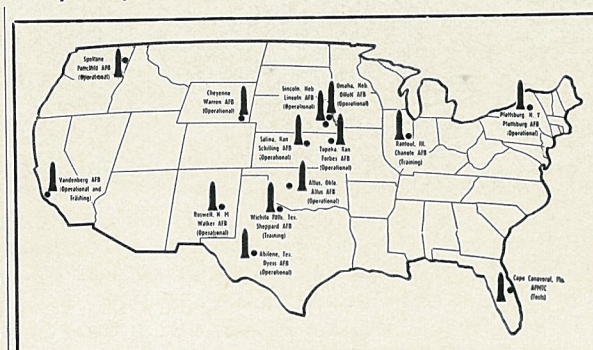
LINCOLN AFB—Nobuko Tsukui, Japanese student at the University of Nebraska, demonstrated the traditional tea ceremony of her native land at the May luncheon of GD/Astro Wives' Club here.

Held at the Plainsman Hotel, the program was arranged by a committee of Mrs. Hugh Laird, chairman; Mrs. Arthur Lillis, Mrs. Fred Quick, and Mrs. Alan Ishikawa.

The latter, a native American of Japanese descent, assisted in insuring authenticity of the program and in meeting-room decor.

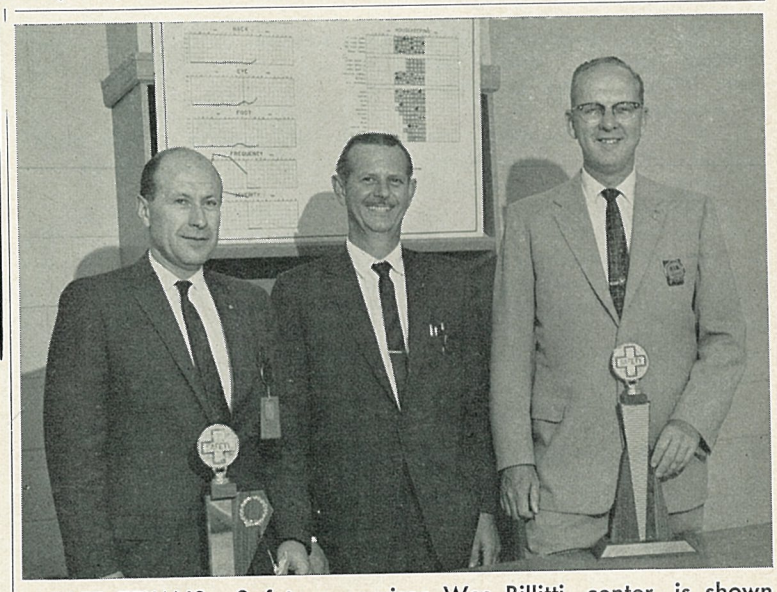
Also adding to the oriental flavor of the event was Ushemi (Mrs. H. J.) LaBlanc, GD/Astro wife, who wore the costume of her native Japan.

Nearly 100 members and guests attended the buffet and program.

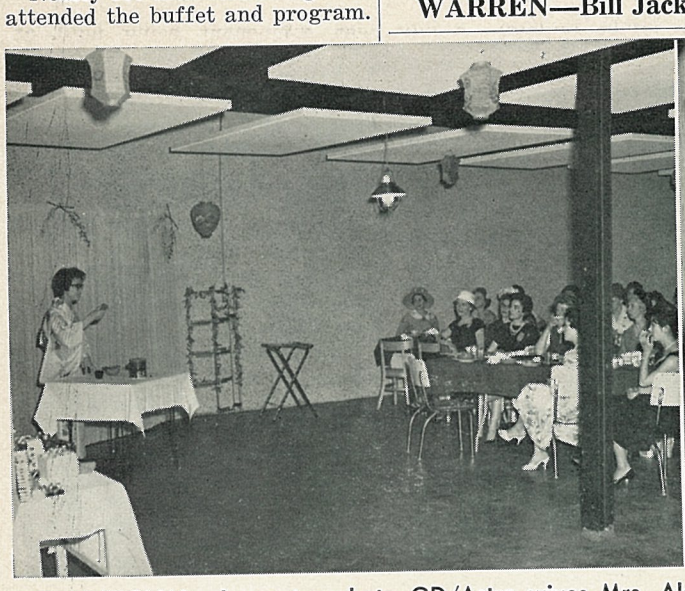


OFF-SITE NEWS

AFMTC—P. C. Brown, ext. 3-4741.
ALTUS—A. P. Dawkins, ext. 7141.
DYESS—G. D. Higgins III, ext. 8370.
EDWARDS RS—Chris Marques, ext. 27.
LINCOLN—Maxine Utley, ext. 412.
PLATTSBURGH—Elly FitzPatrick, ext. 6281.
SCHILLING—J. E. Riley, ext. 213.
SHEPPARD—Steve Delbridge, ext. 8243.
VANDENBERG—Lucy Signorelli, ext. 8-5046.
WALKER—Rod Bricker, ext. 603.
WARREN—Bill Jack, 77-466.



SAFE TEXANS—Safety supervisor Wes Billitti, center, is shown with recent recipients of housekeeping and safety trophies at Dyess AFB. George McHenry, design liaison engineering, left, and Tom Daugherty, material control, have each won monthly awards three consecutive times.



TRADITIONAL—In center photo GD/Astro wives Mrs. Alan Ishikawa, left, and Mrs. H. J. LaBlanc, right, pose with Nobuko Tsukui, guest, who demonstrated traditional Japanese tea ceremony at wives meeting at Lincoln AFB. She is University of Nebraska student.

Altus Photos Win Quarterly Contest

ALTUS AFB—Judging in the quarterly contest of ARA Camera Club here was conducted recently by John Cates, member of Photographic Society of America.

J. D. Goodman, Dept. 617-0, with "Shoemaker's Hands," Martin Graw, Dept. 539, with a portrait of a young girl, and Mrs. J. D. Goodman with "Solitude" won the black and white class.

Color slide winners were Goodman with "The Roper," Mrs. Goodman with "Happy Landing," and William J. Done, Dept. 617-3, with "Rainbow Cactus."

Astro Wives Club Names Chairmen

DYESS AFB—Committee chairmen for Astro Wives Club here have been announced by Mrs. Shirley Thompson, president.

Mrs. Bobby Ballorne is parliamentarian; Margaret Rowles, social chairman; Mary Morgan, house and reservations; "Willie" White, ways and means; Leota Streplin, publicity; Julia Gray, hospitality; and Helen Boyd, historian.

Resourceful Pair at Dyess AFB Use Hands to Halt Missile Leak

DYESS AFB — Two quick-thinking GD/Astronautics employees here recently pulled a space-age "boy and the dike" routine and possibly saved an Atlas missile from damage.

T. J. Colston was performing what is known as "missile watch" duty on a Saturday night recently. This involves periodic checks on stored missiles. including pressurization, etc. He heard a loud "pop" and investigated.

Colston found a hose connecting "K" bottles (filled with nitrogen to provide missile pressurization) to the Atlas tank had broken and at the same time a valve on the fuel tank had also broken. Missile tank pressure was seeping out, with a collapse of the tank section inevitable, unless it was stopped.

Colston placed his hand over the valve end, stopping the leak, while he called for assistance.

W. B. Cozart joined Colston and alternated with him in holding back pressure until parts could be obtained and repairs made.

R. C. Harbert, GD/Astro operations manager here, wrote each a letter of commendation and presented them with Atlas models for their quick reaction and efforts. Col. H. B. Manson, SATAF commander, also added his praise for the two.

WELL DONE—R. C. Harbert, left, GD/Astro operations manager at Dyess AFB, and Col. H. B. Manson, right, SATAF commander, present missile models and letters of commendation to Astro's T. J. Colston and W. B. Cozart. They stopped missile tank pressurization leak, possibly saved missile from collapse.

Golfers Organize For Team Match

DYESS AFB—A 12-man golf team to represent Dyess AFB in an inter-base tournament with GD/Astro teams from Walker AFB and Altus AFB at Lubbock (Texas) Country Club June 9 and 10 is now being formed.

Candidates are asked to submit score cards for 36 holes played prior to June 5 to Dub Polson, employee services, Bldg. 7233.

GUN CLUB FORMED FOR PLATTSBURGH

PLATTSBURGH AFB — An ARA Gun Club was organized here last month under direction of Hal Boyett, commissioner.

Affiliation with the Plattsburgh Rod and Gun Club provide the GD/Astro group with full use of shooting facilities, where an invitational rifle match was conducted shortly after the club's formation.

ARA shooters took four of six top spots in this contest, which was followed by buffet luncheon for members and guests.

Officers of the group are C. A. Jackson Jr., president; J. W. Esposito, first vice president; J. J. Owens Jr., second vice president; J. G. Learned, secretary; and Patricia Rice, assistant secretary.

The club's second shoot was a small bore rifle match May 20.

GD/ASTRO GIRL WEDS IN EAST

PLATTSBURGH AFB — Sharon Recore of GD/Astro production planning (Dept. 620-2) here, became the bride of Francis Roberts of Plattsburgh May 26. The couple honeymooned in Washington, D. C.

Photo Process Key to Making Metal Stencil

A "painting" problem which has had General Dynamics/Electronics manufacturing engineers scratching their heads has been solved with the help of GD/Convair photo technicians.

In what may well be the first application in industry, a photographic process is turning out etched metal stencils for precise and permanent marking of electronic assemblies.

Thousands of dollars in time and material will be saved with the new-type stencils, said R. W. Allen, GD/Electronics tooling representative in manufacturing engineering.

R. J. Hogue, manufacturing analyst, was appointed by G. L. Hale, supervisor in GD/E tool manufacturing, to head activities destined to solve the stenciling problem. He coordinated development of the unique process with GD/Convair photo lab.

Concept of the etched metal stencils stemmed from necessity. Customer requirements that location of all transistor points be marked on electronic assemblies and circuit boards sent tooling engineers searching for a stencil material that would hold its shape indefinitely.

Printed circuit boards must be labeled with the tiny symbols within thousandths of an inch, explained Allen, so that any stencil used must be exact.

Marking of terminal points is necessary to identify their position when repair in the field is required.

Silk screen, paper stencils and decals would not serve adequately. The silk screen type could not fit down close enough into the small areas of the assemblies. Neither the silk screen nor paper type would hold their shape nor take the thick, paste-like stencil ink for more than a couple of applications. And, use of paper decals was discarded because they might not stay permanently attached.

Cutting of symbols in metal was not feasible, since no tool could trace the tiny characters accurately or sharp enough for clear legibility.

GD/Electronics manufacturing engineers took their troubles to photo lab technicians.

K. O. Hanson, photo lab supervisor, and Ken Overfield went to work to develop a technique which now faithfully reproduces the complicated engineering drawings onto small brass sheets.

Other materials were tried, but brass proved the only metal suitable for sharp etching.

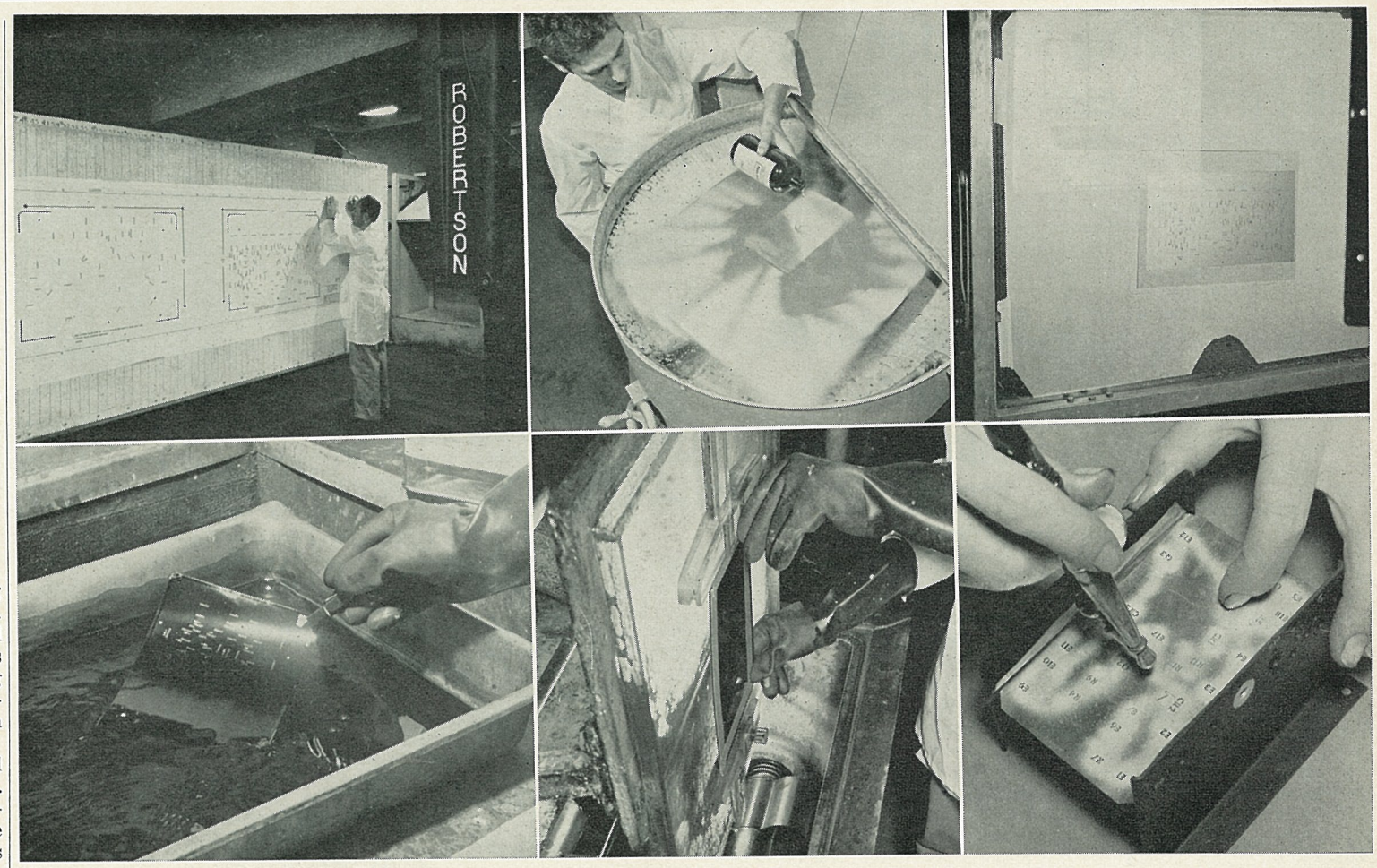
Photo masters, originating in GD/Electronics engineering, are photographed and reduced by the huge 48-inch Robertson template camera. The drawings, on dimensionally stable mylar sheets, are reduced to a quarter scale—a 6x9-in. negative is made of a 2x3-ft. drawing.

The negative is placed on a thin .004-in. sheet of photo sensitized brass of the same dimensions, and exposed to arc light rays. Next, the sensitized brass goes into a developer where the image is seen for the first time. The areas which have received no exposure are then soluble in water. Exposed parts are acid resistant and unexposed parts are open so that they can be etched out with acid. Final step comes in the etching machine where paddles mix air with acid to form a catalytic action etching away the exposed brass and come out with a perfect reproduction of the original drawing.

Characters are as small as 30-thousandths of an inch high on the finished brass sheets.

About 100 different types of these stencils are needed for the various assemblies fabricated in GD/Electronics manufacturing, Allen said.

"We feel that this is a revolutionary step in the use of photography to fill a need in the industrial field, especially with the ever-increasing demand for closer accuracies," said Hanson.



STENCIL MAKING—Unique photographic process producing perfect stencils on brass sheets in GD/Convair photo lab is portrayed above step by step: (1), top left, Bob Tabor attaches master to easel where it is held by vacuum as it is recorded on film in proper reduction by Robertson camera; (2) top center, Oscar Sorenson pours emulsion over brass sheet to sensitize it; (3) top right, negative and metal sheet exposed in vacuum frame to arc light rays; (4) lower left, after exposure sensitized brass sheet goes into developer; (5) lower center, it is placed in etching machine where exposed brass is etched away to leave legible stencil; (6) new-type metal stencil in use on GD/Electronics unit. Metal stencils solve problems of stability, legibility for marking electronic assemblies.

PERFECT MARKING—Ailene Judd, GD/Electronics stenciler at San Diego division, brushes thick stenciling Cat-l-ink over newly-developed brass stencil to mark exact locations of terminal points on electronic assembly chassis.

GD/Astro, GD/Convair Aerospace Experts To Speak at IAS National Summer Meet

Four General Dynamics aerospace experts will be on the agenda at the National Summer Meeting of Institute of Aerospace Sciences in Los Angeles, June 19-22.

Krafft Ehricke, director of advanced studies at GD/Astronautics, will speak on "Nuclear Propulsion for Boost Vehicles" at a secret session June 19. "Optimum Orientation of Solar Cell Panels" is the subject of Louis M. Reinkens, GD/Astro thermodynamics engineer, at the June 20 Spacecraft Forum.

R. W. McDonald, senior aerodynamics engineer, and W. D. Reeder, design specialist, of General Dynamics/Convair, will talk on "Research and Design of GETOL Aircraft" at the Near-Surface Air Vehicles session on the same day.

Engineers Elected To ASME Positions

Three GD/Fort Worth engineers were recently voted to offices in West Texas Section, American Society of Mechanical Engineers.

L. E. Erwin, thermodynamics design group, was elected chairman for 1962-63; W. L. Nix, engineering test laboratory, was voted secretary; and B. J. Pendley, structures cyclic fatigue group, was named a director.

The new officers were elected at ASME's recent annual honors and awards banquet.

Scholastic Efforts Given Recognition

Two General Dynamics youngsters were among 24 outstanding high school science students honored by Grossmont Union School District at ceremonies at San Miguel High School last month.

Martha Field, daughter of J. K. Field, chief of employee services, GD/Convair, was honored for accomplishments in biology, and Stuart Galley, son of GD/Astro's R. L. Galley, Dept. 557-3, received an award in mathematics.

Each received a professional scientific text book supplied by General Dynamics/Astronautics.

Young Galley also received honors for a technical paper in mathematics at the recent Technical Papers Symposium held at Naval Electronics Laboratory. He received a trophy, cash award, and the Bramwell award for mathematics.

Gleaming Gold 'Toaster' Used on Missile Parts

A gold-plated "toaster," assembled at General Dynamics/Convair, soon will go to work heating missile components destined for advance weapon systems.

The gleaming bank of quartz infrared lamps radiates a million watts power. Each of the 304 lamps is at least 3,200 watts—equivalent to the power in one deep fryer.

The reflectors are coated with white gold to direct the heat from the inside structure onto the specimen being tested.

The delicate lamps are divided into eight separate sections, each section with its own channel of power with control from eight separate thermocouples.

Missile components will be slipped over the top of the circular bank and heated from the inside to 715 degrees Fahrenheit, said E. Schiff, structures lab assistant group engineer. It will take a flash of 10 seconds to reach that temperature.

Thermocouples attached to both interior and exterior will measure temperatures on both sides of the components. Purpose of testing is to be sure the articles, made of a combination of fiber glass and metal, can withstand high temperatures without bubbling.

First task will be checkout of each component being built at GD/Convair for the Air Force's Minuteman.

The test tool was constructed in GD/Convair's special test tool manufacturing section which has built many unique tools for special testing of Convair jet interceptors and transports.

Monitoring scheduling for program control administration is J. R. Mikulsky, program analyst.

Huggens President Of Film Producers

G. M. Huggens, motion picture coordinator at General Dynamics/Pomona, has been elected president of the Southern California Chapter of the Industry Film Producer's Association.

Huggens was elected at the association's monthly meeting May 14 in Los Angeles.

"TOASTER"—D. A. Fletcher, structures lab engineer at GD/Convair, gingerly measures spacing between lamps in new million-watt heat lamp bank. Lamps must not be touched as grease from hands would absorb infrared, causing them to break.

Free Ice Skating Instruction And Private Sessions Offered

Private skating sessions at reduced prices, plus free instruction at all skill levels is offered General Dynamics employees by the joint ARA-CRA Ice Skating Club.

Activities center at Iceland, 6055 Lake Murray Blvd., La Mesa, where skating starts for the ARA-CRA group at 6:30 p.m., Thursdays, with reduced prices effective until 7:30 p.m. Participants enjoy exclusive use of the rink until 8 p.m., and may continue skating with the public until 10 p.m. at no additional cost.

Free instruction for beginners, intermediates, and advanced skaters is directed by Professional Audrey Ericson, with social dance routines emphasized for more skilled enthusiasts.

The group plans several weekend field trips during the summer, including visits to Glacier Falls (near Disneyland), Paramount, Pickwick Arena, Blue Jay (Arrowhead), and Big Bear Lake.

Prospective members may complete application forms at Iceland any Thursday. New membership cards for present members will be issued July 1.

Additional information on the group is available from CRA or ARA headquarters, or by contacting ARA Commissioner Bud Davies, Astro ext. 4042.

Fencers Take Part In Mixed Doubles With Scores Pooled

The joint ARA-CRA Convair Fencing Club has completed a tournament season of four meets open to all fencers in San Diego County.

Unusual was a mixed doubles tournament in late May in which men and women fencers entered as teams, fenced in their respective classes, and pooled scores for final results.

ARA Commissioner Mike Hurley and Audrey Knauer of San Diego Fencers Club (SDFC) placed first with nine wins, while CRA fencer Barbara Proppe and Tom Marocz, SDFC, were in second place. ARA fencer Inez Kirby teamed with Dick Jones, SDFC for third.

Tournament entries averaged 10 per contest. Of the 25 active fencers in the San Diego area, nearly half are Convair Fencing Club members.

Astro and Convair Golfers Runners-up In IRC Tournament

Over 40 golfers from General Dynamics joined in the 20th annual IRC golf championship tourney during the weekends of May 12-13, 19-20 at Torrey Pines.

Six emerged winners. R. R. Reid of GD/Astro won the 10th flight, downing A. Schultz, Muni employee, 1 up.

Runners-up included Fred Wells of GD/Convair, second flight, John Jodka, also GD/Convair, fifth flight. Ed Stuchly of Astro was second in third flight, D. P. Bender, also GD/Astro, second, 11th flight. B. Merrelees of GD/Electronics lost to the winner of the 9th flight.

Altogether, 15 companies in the San Diego area were represented. GD/Convair had more golfers, 22, entered than any other group.

Space Propulsion Address Scheduled

All General Dynamics people interested in space propulsion are invited to the open meeting of Aerospace Electrical Society next week (June 14) in Balboa Park's Recital Hall, 7:30 p.m.

Robert Speiser of Electro-Optical Systems, Inc., Pasadena, Calif., will speak on cesium ion engines, their capabilities and uses for propelling men and heavy equipment in deep space. Movies and slides will be shown.

For information contact E. F. Kotnik, ext. 2432, or Al Fabbri, ext. 1104, both GD/Convair Plant 1; C. F. McCabe, ext. 2244, Don Ritchart, ext. 1818, or Dave Moss, ext. 4382, all GD/Astro main site.

Documentation, Spacemen in Tourney Lead

Spacemen and Support Documentation are still on top of their leagues in the IRC volleyball tourney with Spacemen a cinch to take champ spot in the Friday League.

Play-offs between first and second-half winners will be scheduled at the end of tourney play, probably within the next week, said Pete Beyrer, CRA commissioner.

Last matches will be this Friday for the Friday League while Wednesday League teams wound up their play last week.

Scores in recent Wednesday night games saw Hounds defeating Convair Engineers, 15-12, 15-8 in Wednesday League's May 16 matches. NEL downed Astronets, 15-10, 15-13; Support Documentation beat City Engineers, 15-2, 15-5.

The next week Support Documentation had a 15-0, 15-0 score against Astronets. NEL won from Convair Engineers, 15-12, 15-10; Hounds from City Engineers, 15-12, 11-15, 15-11.

Spacemen continued their winning streak in May 18 and May 25 matches, defeating Design, 15-10, 15-5, and Project Support, 15-8, 15-10. Park and Recreation won from Project Support, 15-10, 15-11. The following week Park and Recreation was defeated by Dept. 101, 15-0, 15-0.

Games scheduled for Memorial Day were cancelled and will not be reset if standings are not affected, said Beyrer.

Helix Toastmaster Club Hailed as Best In San Diego Area

Mt. Helix Toastmasters' Club (126), composed largely of GD/Astro and GD/Convair employees, has been selected as the area's outstanding club in competition with 44 other clubs.

Present president is Jim Johnson (Dept. 951-7), while Seymour Zeenkov (Dept. 510-3) is educational vice president, Gary Hanssen (Dept. 526-2), secretary, and Al Torrible (Dept. 557-5), treasurer, all of Astro.

Past presidents include Astro's Charles Plummer (Dept. 152-0) and Tris Wooster (Dept. 578-1) and Ken Cummins, GD/Convair, Dept. 6.

Meetings are held at 7 p.m. each Wednesday in Helix House Restaurant, College Grove.

Spanish and Russian Courses to Start

Classes in beginning conversational Spanish and beginning Russian will start Monday (June 18) at San Diego Evening High School, 12th and Russ Sts.

Additional classes in advanced Russian and review Spanish also are offered during the summer session, June 18 through July 27. No fee is charged.

Anyone wishing to pre-register may call the school office, BE-3-7402.

Four-Week Salvage Schedule Arranged

Four-week schedule at the GD/Astro and GD/Convair salvage yards is:

GD/Convair—June 9, 23.

GD/Astro—June 16, 30.

Division yards are open for sales to employees on alternating Saturday mornings, 8 a.m. until noon.

Registration For In-Plant Courses Open

Registration is open now at San Diego for ten in-plant courses beginning the week of July 2 under sponsorship of GD/Convair and GD/Astro educational services.

Courses are open to first and second-shift people at any General Dynamics facility in the San Diego area, including GD/Convair, Plants 1 and 2, GD/Astro, Plants 1 and 2, Kearny Mesa, and GD/Electronics, Plants 1 and 2.

All courses are coordinated with San Diego City College, with six carrying college credit.

Offered are: Basic Electricity, Mon.-Wed., 4:30-7:30 p.m., CRA Clubhouse, Don Munger (Dept. 6) instructor; Basic Electronics-Theory and Components, Tues.-Thurs., 4:30-7:30 p.m., CRA Clubhouse, E. B. Milner, GD/Electronics, instructor.

Radio Communications (FCC License Review), Tues.-Thurs., 12:30-3:30 p.m., Bldg. 14, classroom 8, Plant 1, Tom Harris, GD/E, instructor. Basic Technical Writing, Mon.-Wed., 4:30-7:30 p.m., Bldg. 19, basement, classroom 3, Al Walden (Dept. 16), Intermediate Technical Writing, Tues.-Thurs., 4:30-7:30 p.m., Bldg. 19, basement, classroom 3, Louis Henderson (Dept. 16), instructor. Intermediate Technical Writing, Mon.-Wed., 12:30-3:30 p.m., Bldg. 19, classroom 3, Henderson, instructor. Basic Die Making, Tues.-Thurs., 12:30-3:30 p.m., Bldg. 32, classroom 9, Plant 1, Ed Gurling (Dept. 401), instructor.

Three courses will be taught by GD/Astro instructors at Plant 2 in the Bldg. 28 classroom. They are Basic Blueprint Reading, Mon.-Wed., 4:30-7 p.m., G. P. Webb. Advance Blueprint Reading, Tues.-Thurs., 4:30-7 p.m., Webb. Effective Writing, Mon.-Wed., 4:30-6:30 p.m., C. L. Adams.

Hal Rubin of GD/Astro educational services at ext. 1182, Plant 2, is taking applications for the courses at Plant 2.

For enrollment in any of the other courses contact L. W. Turner, ext. 491, GD/Convair Plant 1, or sign in the Bldg. 15 educational services offices.

Hospitals Aided Via Con-Trib

VANDENBERG AFB — GD/Astronautics Employees' Con-Trib-Club here made gifts of special apparatus to three area hospitals.

Santa Maria County Hospital and Sisters Hospital, Santa Maria, each received defibrillators (devices for heart stimulation) while a special incubator was donated to Lompoc Community Hospital.

Simultaneously, Con-Trib-Club presented a check for $200 to the American Heart Association's local fund drive.

Representing GD/Astro at a presentation luncheon were Ross Workman, Con-Trib-Club chairman here, K. E. Newton, operations manager, Shirley Nixon, Robert Hughes, Leonard Haines and Tom Jaqua.

Trailer Fans Drive To Live Oak Park

A weekend outing at Live Oak Park in May attracted trailer fans from both ARA and CRA clubs. The event was sponsored by Astro Travelers with several guests from CRA's Road Runners.

Seventy-two persons in 13 trailers were on hand by Saturday evening for the traditional potluck supper. Later Ray Deven of Road Runners was caller for square dancing.

Men of the group turned out early Sunday morning to prepare breakfast.

Next Astro Travelers outing is slated for June 16 and 17 at Hulburd's Grove. Additional information on this trip is available from Steve Clark, Plant 2, ext. 1143.

TOURNEY CHAMPS—Dick Mitchell presents trophies to top players in recent ARA tennis tournament. Left to right, Mitchell, Frances McBride, women's singles, Bill Berry, men's consolation, Flora Cannau, women's runner-up, ARA Commissioner Ben Cendali, who with Larry Chambers (not shown) won men's doubles, and Carl Schuler, consolation runner-up.

Patio Party Planned By ARA Singles Club

ARA Singles Club, new social group for single employees 21 and older, will feature a patio party in the main picnic shelter, ARA Area, at 8:30 p.m., June 9.

An orchestra will play for dancing and snacks will be served. Other refreshments will be available for purchase. Admission is 50 cents to those presenting an Astro identification card.

Singles Club recently staged a theater party at a performance of Astro Players' "Wake Up Darling." After the show, the group held a "dutch treat" gathering at an area night spot.

Officers Installed By Astro Motors

Newly-elected officers will be installed at the meeting of Astro Motors, ARA motorcycle club, at 7:30 p.m. (June 6) in ARA Clubhouse.

Harmon Lewis, Dept. 756-4, is new president, with W. F. Mundell, Dept. 573-3, vice president; Fred Fuller, Dept. 771, secretary; and ARA Commissioner Paul Shannon, Dept. 565-2, "doubling in brass" as treasurer.

Road captain is Bill Hesketh, Dept. 250, and Bill Salmess, Dept. 143, is referee.

Spanish Course Open to June 12

Prospective travelers in Mexico may still sign for the special Spanish course, pointed especially for tourists, at next Tuesday's (June 12) class.

The simplified language course, open to GD/Convair, GD/Electronics, GD/Astro people, began last night. It will run for nine weeks in Room 11, Conference Bldg., Balboa Park.

Jim Hardison, instructor, urges everyone interested to attend next week's session, deadline for registering.

SERVES AS QUEEN

GD/Astro's Shirley Kuhn serves as queen of the 1962 Sports, Vacation and Travel show closing today in Electric Bldg., Balboa Park.

Varsity Baseball Unbeaten So Far

Four games, four wins! This is the record thus far of ARA's varsity baseball team in a practice schedule opened in April.

After dropping San Diego Police Department 13-0 in a preseason opener, the ARA unit smashed Ryan 7-2; USS Jason, 13-2; and Lutz Tiger Tread, 10-4.

Highlight of the Ryan contest was a batting series by Marty Martinez who hit four for four. Winning pitcher in that game was Hilbert Murillo.

Rockhounds to Hold Season's Last Meet

Final meeting of ARA Rockhounds for the current season will be held at 7:30 p.m., June 14, in ARA Clubhouse, with final plans for the group's annual picnic July 15 to be announced at that time.

At the previous meeting, 92 members and guests heard Lt. Cdr. R. D. Chilton of Naval Survival School, North Island, discuss mountain and desert survival.

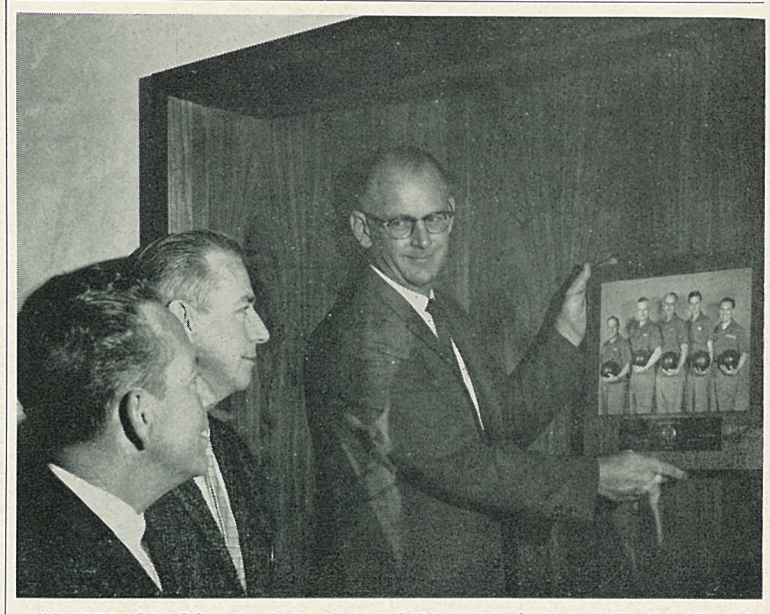
The club's May field trip led 46 members to the Coyote Wells area of Imperial County where they collected fossilized sea shell specimens and picnicked at Desert View Tower.

European Flowers Will Be Discussed

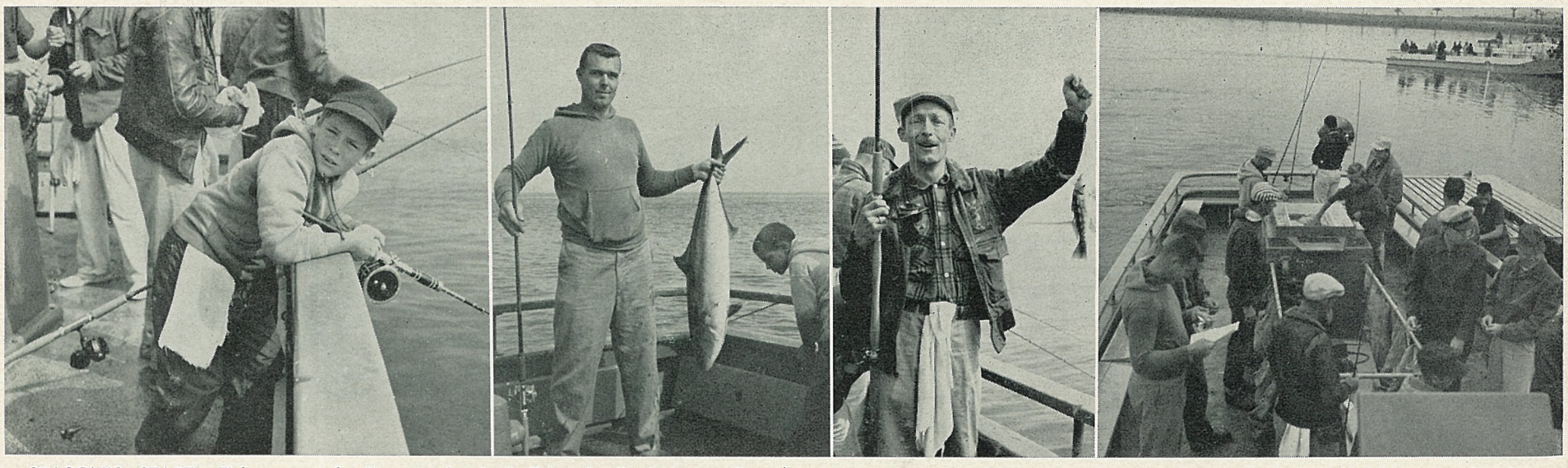
Visits to European flower centers will be the topic of nursery-owner Walter Andersen at tonight's (June 6) meeting of ARA Garden Club at 8 p.m. in the Floral Bldg., Balboa Park.

Subject of Andersen's illustrated talk is two visits to the World Flower Show in Brussels, and formal gardens of London and Paris.

A club membership drive netted 30 new garden enthusiasts during May. Other interested GD/Astro employees or dependents may receive club notices by contacting Everett Henderson, ARA commissioner, Plant 2 exts. 773 or 1108.



UNDER GLASS—Jack Boyle and Dick Mitchell coach Art King in positioning unique award to Astro's city championship bowling team in new ARA Clubhouse trophy case. Plaque includes color photo of bowlers Tony Zullo, Joe Nagy, Dan Chovan Jr., Emanuel Diguilio, and King, team captain.



SEASON'S START—Fishermen of all ages hooked fish of all sizes on first GD/Astro chartered trip of season to La Jolla kelp beds. Jack Wilson Jr. (Dept. 967-6) snapped highlights, from left, Jeff Vincelett, 11, patiently waiting for bite; Jerry Huston with 26½-lb. yellowtail, top catch of day; Phil Vincelett Sr., happy to reel in even a small one; stop at bait tanks before heading for open waters. Eighteen anglers made trip, many fathers taking along their young sons.

Teen-Agers Cancel Scheduled Dance

ARA Teen-Age Club's June 16 dance, planned as a send-off for the vacation season, has been cancelled due to conflicting clubhouse schedules. Next teen-age event is a dance July 7.

Sports & Recreation

CLEAN SWEEP—Production control department teams shown here won both first and second shift championships in ARA Plant Championship Basketball for 1961-62. First shift unit took all-plant honors. General Foreman B. J. Yoakum, left, represented department at trophy presentations recently.

ARA Calendar

(GD/Astronautics Recreation Association has some 40 activities in operation for employees. For information call ARA Headquarters, ext. 1111.)

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ASTRO LENS — Meeting 7:30 p.m., June 17, Photo Arts Bldg., Balboa Park.

ASTRO MOTORS—Meeting 7:30 p.m. today (June 6), ARA Clubhouse.

ASTRO NOTES — Chorus rehearses 7:30 p.m., Mondays, ARA Clubhouse. Appearance at Mission Gorge Trailer Villa June 26.

ASTRO PLAYERS—Final performances of "Wake Up Darling," 8:30 p.m. June 8 and 9, ARA Clubhouse. Tickets at employee services outlets, or at door.

DISCOUNT TICKETS — World's Fair tickets, adults $6 (regular $10), children, $3.75, at employee services outlets.

GARDEN CLUB — Meeting 8 p.m. today (June 6), Floral Bldg., Balboa Park.

GOLF — Late season Twilight League unit entries accepted through June 22. Play opens July 10.

GROUP TRAVEL — Big Bear trip June 15-17. Meals and lodging $11 per person. Ten-day World's Fair trip July 21-30 with transportation, sight-seeing, Fair admission, accommodations $242 each.

HI-FI/MUSIC — Recital meeting 7:30 p.m. June 12, ARA Clubhouse. Featuring Roberto Torres, classical guitarist. Reservations with Ben LaChance, ext. 2324, or Peg Lewis, ext. 4013, by June 10.

ICE SKATING—Club skating at Iceland, 6055 Lake Murray Blvd., La Mesa, 6:30 p.m., Thursdays. Information from Bud Davies, ext. 4042.

MOVIE MAKING — Organizational meeting of new activity group, 7:30 p.m. June 11, ARA Clubhouse.

RADIO CLUB — (First shift unit.) Meeting today (June 6), 7:30 p.m., Radio Room, ARA Clubhouse.

ROCKHOUNDS—Meeting 7:30 p.m., June 14, ARA Clubhouse.

SINGLES CLUB — Group for single persons 21-and-older plans dance, 8:30 p.m. June 9, ARA Area.

TRAILER CLUB — Outing at Hulburd's Grove June 16, 17. Guests welcome. Information from Steve Clark, Plant 2 ext. 1143.

WATER SKIING—Final membership registration for 1962 season at meeting June 13, 7:30 p.m., ARA Clubhouse.

WIVES AUXILIARY—Luncheon June 20, Valley Ho Restaurant. Social hour 11:30 a.m., luncheon, 12:30 p.m. Reservations with Peggy Ferriera, BR-3-7634.

Hi-Fi/Music Club To Hear Guitarist

Roberto Torres, classic guitarist from Mexico City, will perform at a meeting of ARA Hi-Fi/Music Club at 7:30 p.m., June 12 in ARA Clubhouse.

The group's recent meeting was highlighted by appearance of a "low-fi" combo consisting of Robert Lovall, guitar; D. A. George, homemade "garbage can" bass; Mrs. George, accordion; and E. Montgomery, banjo. Percussion was supplied by Dwayne Jennings, using two thimbles and a washboard!

Work on the club's audio room in ARA Clubhouse continues with two members, Jennings and Al Bowman, having earned ARA 20-hour awards for volunteer work.

Reservations for this program must be made by June 10 with Ben LaChance, ext. 2324 or Peg Lewis, ext. 4013.

Basketballers Earn Trophies

Trophy presentations in the 1961-62 Plant Championship Basketball series were made at a recent meeting of ARA Employee's Council.

Production control teams took top honors in both first and second shift play with a Dept. 223 first shift unit managed by M. J. Gomes winning the plant championship.

Topping second shift contenders was a Dept 224 unit managed by V. W. Way.

Members of production control teams included B. J. Henry, A. Saenger, A. L. James, James Douglas, J. D. Palmer, G. A. Caito, Ray West, Darrell Sandberg, Ken Crotz and Frank Cristarella.

Plant championship runner-up was a Dept. 250 team managed by C. C. Jones.

24 Golfers Chosen For Springs Match

Astro golfers notified of selection for an ARA team to play in the interdivisional tournament June 16 at Gilman Hot Springs, but unable to participate have been asked to contact John Sentovic, ext. 831.

Twenty-four golfers have been named to compete against teams from GD/Convair and GD/Pomona, on the basis of participation in monthly ARA Sweepstakes.

Winning ARA Keglers Invited to Ceremony

All ARA winter league bowlers eligible for trophies, and their guests, have been invited to a presentation ceremony at 7:30 p.m., June 16 in ARA Clubhouse.

Following award ceremonies, there will be music for dancing. Light refreshments will be served.

Two Additional Performances Of 'Wake Up Darling' Scheduled

The theater's most sincere compliment—"Held over"—has been paid to ARA's Astro Players and their first play of the season, "Wake Up Darling."

Two additional shows have been scheduled this weekend, June 8 and 9. Curtain time is 8:30 p.m. Tickets are available at the door, ARA Clubhouse.

Originally scheduled for six performances during May, the show has played to good audiences throughout its run.

A sophisticated situation comedy, "Wake Up Darling" is directed by John Cone, and features Gretchen Hart-Poindexter, John Brigante and Richard Elbe in leading roles.

Others in the cast include Annabel Audet, Dixie Quesenberry, Bettye Eagon, Harvey Simpson, Genger Koger, William Quill, Julius Rose and Nancy Shields.

Popular throughout the run were arrangements for discount purchase of blocks of seats by ARA groups planning theater parties. This system remains in effect for final performances and group representatives may contact Milt Ball, ext. 1428, or Millie Rankin, ext. 1324, for additional information.

Gross 74 Wins Bonita Sweeps

Newcomer to Astro golf circles, T. W. O'Laughlin Jr., Dept. 141-2, shot a 74 to win low gross honors in the 0-12 handicap bracket at ARA's May sweepstakes at Bonita.

Bob Hooten and Harry Richards tied at 77 for second place, while Dick Parmley shot 78 for third. Low net winners were Dick Tobias (68), Jerry Long (69) and Chuck Dunand (70).

In the 13-19 category, low gross of 80 was copped by Charlie Hopkins, while Ed Rylander shot 83 and Art Simington 84. Low nets in this class were tallied by Bill Moon (66), Dick Torrence (68) and Hank Billings, J. Jonte and J. Wiley (69).

In the 20-plus bracket, low gross honors went to Chris Arapasta-this with 87, Dick Campbell, 88, and H. Amundrud, 89. Gladys Stevens had low net with 66, while Ed Leonard's 67 and Tom Petitt's 69 rounded out the winners.

June sweepstakes were played June 2 and 3 at Fletcher Hills.

GD/Astro Daughter Shoots 82 to Win

Pat Bourgeois, 14, won two divisions in the Southern California Junior Golf Association invitational tournament held recently at Santa Barbara. She is the daughter of Ed Bourgeois, GD/Astro Dept. 143-1.

Pat shot an 82 to win in the girls' 13-14 age group, as well as over-all girls' honors.

Motion Picture Club Proposed For Astro

GD/Astro employees interested in forming an ARA-sponsored motion picture club have been asked to attend an organizational meeting at 7:30 p.m., June 11 in ARA Clubhouse.

Both 8 and 16 mm fans will be welcomed. The group will offer instruction for improving personal movies, and will produce films using 16 mm ARA equipment.

Additional information is available from Andy Drollinger, Plant 2 ext. 1264.

ARA Ride Club To Be Host at Horse Show

ARA Riding Club will meet at 7:30 p.m., June 12, in ARA Clubhouse and on June 16 and 17 will host the Mission Riders Horse Show as another of the season's free events in their ARA Area arena.

Recent club acquisitions are a team of white horses and a haywagon used for children's rides every Saturday and Sunday. The horses are also available for riding at $1.75 per hour for GD/Astro employees and dependents, or $1.25 and 50 cents per hour for Riding Club members.

Any Astro group can arrange to use the team and wagon for day or evening hayride parties at 75 cents per person by contacting Rick Moore, ext. 2396.

The club has obtained use of additional pasture land adjacent to ARA Area and has made it available to employees for boarding their horses at nominal rates.

Club President Les Allen has recently announced a search for persons interested in amateur calf roping. Present plans call for Riding Club to supply calves and instruction at a reasonable cost, with participants furnishing mount and roping equipment.

Further information on this subject is available from him at ext. 2377.

Russ Luker Scores Ace at Torrey South

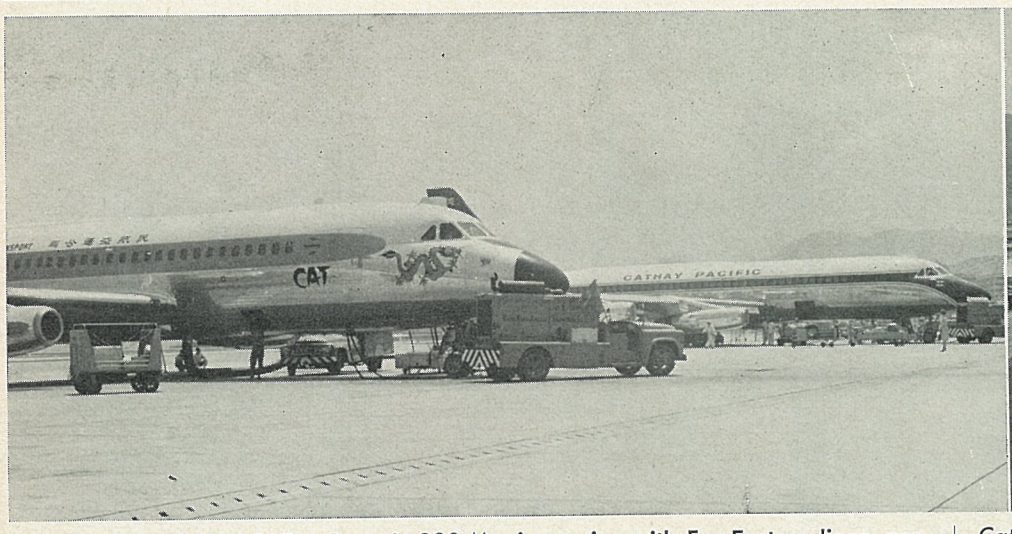
Big thrill for GD/Astro golfer Russ Luker, Dept. 223-1, came recently when he dropped a hole-in-one on the par-three 154-yard third hole at Torrey Pines south course.

Witnessing his "big moment" were fellow employees Fulton Smith, Ken Crotz, Paul Wooten.

Dates Established On Radio Field Day

Plans for participation in this year's Amateur Radio Relay League (ARRL) Field Day June 23-24 will be discussed at tonight's (June 6) meeting of ARA Radio Club, 7:30 p.m. in ARA Clubhouse.

As in previous years, the club will operate communication equipment using emergency power supplies continuously for 24 hours during the event. Judging is based on the number of contacts with U.S. and foreign radio amateurs made during that period.



COSMOPOLITAN PORT—Convair 880-Ms, in service with Far Eastern lines, predominate apron at Hong Kong. Caught at same time in setting of hill-surrounded city, harbor in distance, are 880-Ms flying regular schedules for Japan Air Lines, Cathay Pacific Airways, Ltd., Civil Air Transport of Formosa. Convair 990s of Swissair and SAS are now touching at Hong Kong port. Shots were taken by Harry L. Addis, GD/Convair field service rep.

Six Jet 990s Serve 30 Cities, Philippines to South America

Convair 990s flying over Swissair's far-flung network are "about as international as they can get," reported L. J. Bordelon, chief of GD/Convair service engineering, on his recent return from a visit of Swissair operations.

Swissair has received six 990 Coronados, international version of the latest model jet airliner. Four are operated by the Zurich-based airline and two by SAS in conjunction with Thai International.

These six Convair-built craft operate through 30 cities, in nearly that many countries, stretching two-thirds of the way around the globe—from mid-Europe across the Middle East to the Philippines, and in the opposite direction, from Switzerland into Africa and on across the Atlantic to South America.

Swissair now operates 125 departures a week. List of cities served reads like a world gazetteer: Zurich, Athens, Istanbul, Ankara, Buenos Aires, Karachi, Tel Aviv, Geneva, Cairo, Beirut, Bombay, Bangkok, Abadan, Dharan, Baghdad, Teheran, Manila, Tokyo, Lisbon, Dakar, Rio de Janeiro, Sao Paulo, Montevideo, Hong Kong, Calcutta, Tripoli, Accra, Lagos, Khartoum.

Countries moving closer together, time-wise, with speedy jet links, are Switzerland, Greece, Turkey, Egypt, Israel, Lebanon, Iran, Iraq, Saudi Arabia, Pakistan, India, Thailand, Hong Kong, Japan, Philippines, Portugal, African countries on both coasts, Brazil, Argentina.

Latest inaugurated flights connect Zurich with Tripoli, Libya, and Accra and Lagos on Africa's Gold Coast; and Cairo with Khartoum in East Africa.

SAS went into passenger service with two 990s the first week in May in cooperation with Thai International. SAS operates from Copenhagen over Middle East routes, then along Thai International routes, with Thai cabin crews, from Bangkok to Singapore, Djakarta, Manila, Hong Kong, Tokyo. SAS then takes over to make the return flights to Copenhagen.

"Passenger reaction to the 990 is reported as gratifying," said Bordelon. "Features receiving the most comment were noise level, interior appointments, and performance.

"Swissair was quite pleased with the success of the 880-M operation and expects that the 990s will equal or surpass this experience."

Field service representatives covering the European area in support of Convair-built craft are Frank Laffoon, M. R. Addis and Ed Buckman.

Air Transportation Students Inspect JAL 880-M on Line

A group of future pilots and stewardesses visited General Dynamics/Convair last month (May 19) for a briefing on Convair jet transports.

Students in air transportation at Mt. San Antonio College, Walnut, Calif., 49 in all, inspected a Japan Air Lines 880-M on the line, heard how such a plane develops, from design board to flight test and on into service with airlines.

R. L. Runnalls, aircraft performance engineer, and Don Maxion of customer service training spoke and showed a film on the 880. Guiding the tour was W. W. Lynt of communication department.

Stewart Angle, head of the college's aero and transportation department, said the young men and women are all heading toward careers in some phase of air transportation.

Stork Wins as Dad Races to Hospital

Donald Danes, GD/Astro Dept. 547-5 at San Diego, recently became a father "the hard way." On May 16 he rushed his expectant wife, Ann, to the doctor, and was told to proceed to the hospital. But . . .

Five-pound, 9-ounce Kathleen made her debut in the family car a few minutes later, with only Danes, a police reservist, in attendance.

AMERICAN EXTENDS JET 990 SERVICE

American Airlines is extending Convair 990 Astrojet service to two more cities this month.

Inaugural flight of General Dynamics/Convair's latest model jet airliner into El Paso, Texas, was last Sunday (June 3). The 990 will make its initial flight into Phoenix, Ariz., June 17.

Now, American's 990 flight to El Paso leaves New York at 9:20 a.m., arriving at the Texas city at 12:05 p.m. after a stop at Dallas. The return 990 flight leaves El Paso at 1:40 p.m. and arrives at Idlewild at 9:40 p.m., also serving Dallas en route.

On June 17 the airline will start using 990 Astrojets on a daily round trip New York-Chicago-Phoenix. The flight will leave Idlewild at 9 a.m. Eastbound, the trip will depart Phoenix at 1:30 p.m.

With the delivery of more of the Convair jetliners, three more 990 flights will be flown on the New York-Chicago route. The 990s also will be put on Chicago-Dallas and Dallas-New York trips.

Two at GD/Astro Pocket $2,211 Each as Suggestion Pays Off

An Employee Suggestion with the greatest saving to General Dynamics/Astronautics from a single idea since inception of the ES program at the missile plant has earned its two originators $2,211 each!

W. V. "Whitey" Kime and V. K. DeBolt collaborated on the pace-setting proposal which has scored total savings of $44,221.

(Record for the highest GD/Astro award payment in the ES program is held by T. M. Johnson, Dept. 773, who in 1960 received $2,378.60 for a suggestion saving $23,786.)

Kime and DeBolt submitted their proposal in late 1959 when both were Dept. 759 welders. Kime remains in that department now as assistant foreman, while DeBolt is in Dept. 758 at Plant 2.

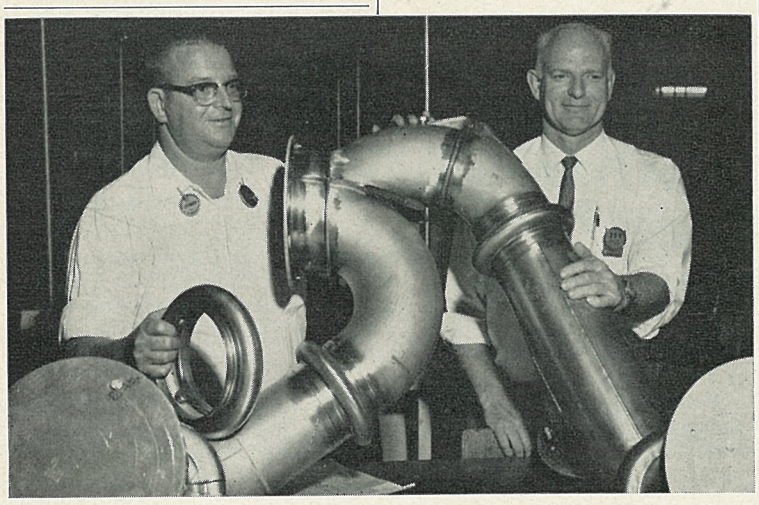
They proposed a revised method of welding Omega joints used on Atlas missile fuel and liquid oxygen assemblies, in which two thin metal parts were joined to a heavier part.

Because of "flashback" and "burning" during welding, frequent leaks developed, resulting in a high rejection rate for the joints. In their ES, the two suggested "seam tack welding" the two thin materials, with subsequent welding to the heavy unit.

Following review and study, the ES was placed into effect during 1960, and in 12 months saved an estimated $16,832 in labor and $27,379 in material costs.

Both Kime and DeBolt have previously participated in the ES program. In 1956, while at Convair, Kime simultaneously received award payments for nine suggestions!

Uniquely, another noteworthy Employee Suggestion concerned "Omega joints." In 1958, G. E. Helminski earned the largest ES award paid by GD/Astro to that time ($1,612) by proposing use of metal covers to protect the joints during assembly.



THINKERS—V. K. DeBolt and W. V. Kime display assembly using Omega joints welded by method they proposed. Employee Suggestion on which they collaborated saved GD/Astro $44,221 and earned originators $2,211 each.

GD/Electronics Will Initiate Own Value Control Training Program

General Dynamics/Electronics division at San Diego yesterday wound up the pilot value control training course which initiates GD/E's own program tailored to meet its particular needs.

Popular demand among GD/Electronics people at the two San Diego facilities led to the decision to set up a separate program for the division, explained C. W. Christie, GD/E acting value control coordinator. Up to this time, GD/Electronics people had participated in the GD/Convair seminar series.

Approximately 60 GD/Electronics people have received indoctrination through GD/Convair capsule courses for executives or the regular 40-hour seminars.

"We feel that this is a most important step in scrutiny of our operations," said William Lawrence, GD/Electronics general manager. "As the program gains momentum, we will gain a clearer insight of all facets involved in producing high quality products at the lowest possible cost."

Emphasis in value control will be placed on cost improvement, streamlining of division systems, and examination of new business proposals.

Five employees from second shift met twice a week over the last three weeks from 4 to 6:30 p.m., spending 17½ hours in scheduled "classroom" work and an equal amount of outside time on research.

Fred Klukas, supervisor in inspection; Walt Morrison, engineering; Jack Skimin, operations supervisor; Don Anderson, production control supervisor; Wayne McGee, planning, were "guinea pigs" in the initial course. They applied value control techniques to an actual piece of hardware—a clearance set assembly of a control box.

The seven-session course served, in addition, as a training program for newly-named GD/Electronics departmental coordinators for value control, said Christie.

M. M. Reeder, GD/E value control coordinator, now on special assignment, explained the "functional approach" in opening briefings. Others talking on value control principles were Christie, W. H. Goggin of GD/Convair educational services, C. H. Flint, G. D. Patrick, L. Resnick, A. S. Freedman, L. M. Barnes, L. L. O'Neal, S. Spalter, G. F. Belgum.

Lawrence presented certificates at yesterday's (June 5) closing meeting.

A full-fledged program of GD/E conducted seminars start this month with one seminar to be held each month, Christie said.

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Nine departmental coordinators for value control have been named for General Dynamics/Electronics departments to spearhead all activities related to GD/E's new value control program.

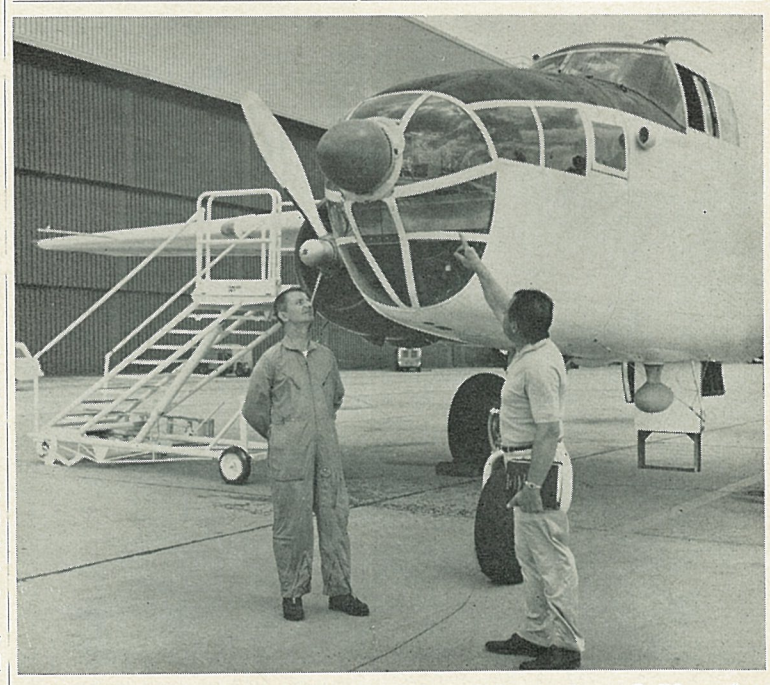
They are G. F. Belgum (Dept. 2), controller's office and systems and procedures; A. S. Freedman (Dept. 3), reliability and quality control; R. J. Cary (Dept. 5), engineering; G. D. Patrick (Dept. 6), operations; L. L. O'Neal (Dept. 10), purchasing; and George Oatman (Dept. 12), industrial relations.

C. H. Flint, engineering; Robert Hickok, operations; R. C. Mansell, reliability and quality control, are coordinators at the Plant 2, Hancock St., facility.

Oatman Assigned To GD/E Facility

George Oatman, long-time GD/Convair veteran in industrial relations, has been appointed industrial relations representative for General Dynamics/Electronics Hancock St. facility.

Oatman first joined GD/Convair in 1941. Except for four years away from the company, he had been in industrial relations, at Plants 1 and 2 and Palmdale facility, throughout his entire service. From 1959 until he returned to San Diego plant last year, he was chief of industrial relations at Palmdale.



SEEING EYE—Lloyd J. Bissell, right, of Santa Ana, Calif., points out features of new GD/Electronics terrain avoidance radar system in nose section of B-25 bomber to Dick Johnson, GD/FW manager of flight, one of several who took demonstration hop at Fort Worth last month. B-25 went on to Eglin AFB for further demonstrations.

Next 60 Days 'Crucial' in Base Activation

Through the remainder of this year several thousand parts, tons of paper work and enough drawings and blueprints to stretch for miles will be issued in support of the Atlas base activation program.

These items and others represent final requirements for General Dynamics/Astronautics to complete activation of the Series "F" (silo) bases. Compared to past requirements in the program, they are relatively small.

However, some indication of their importance is evidenced in declaring the period ahead, especially the next 60 days, as "crucial" in the entire Atlas activation program.

P. M. Prophett, director of base activation, made the declaration with the full backing of Astronautics President J. R. Dempsey.

"Every item, however small, needed to complete these bases must move without delay, if the program is to be concluded on schedule," Prophett said. "The stakes involved were never higher.

"Our nation needs the defense capabilities represented. Delivering the sites on schedule will enhance our reputation as a Corporation and as individuals in future contract negotiations," he added. "Contracts, in turn, could assure a job future for many of us."

"I am assigning a Priority 1 rating to the task of completing all remaining Atlas operational bases ahead of schedule. I want each of you to accelerate your efforts to get the job done."
—J. R. Dempsey

Steps have already been taken within Astronautics to acquaint employees with the situation and to enlist help in carrying the program through to timely completion.

Responsibilities are shared equally by off-site work forces and those at the main plant. Each relies heavily on the other. Each represents an important link in a chain that stretches many miles.

Parts are a good example of this shared task, ranging from the smallest valve to the largest assembly. Each must be available as needed in a step-by-step operation where one missing unit slows or halts the normal routine. Thus, seemingly "unimportant" paperwork affecting their systematic flow — purchase orders, move tags, inspection slips and shipping orders — be-

(Continued on Page 2)

Priority 1

GD
ASTRONAUTICS EDITION
GENERAL DYNAMICS
NEWS
Vol. 15, No. 13 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, June 20, 1962

COSTLY BUSINESS—In top photo Trudy Bayne, GD/Astro assistant supervisor at San Diego, is buried in one-month collection of telephone toll tickets. Below, operators are under heavy load of calls as telephone company analysts conduct traffic survey.

Phone Call vs. a Wire: $5.10 Compared to 90c

With one exception in the Los Angeles area, General Dynamics/Astronautics Kearny Mesa plant has the largest private telephone switchboard in Southern California.

One of comparable size could serve a community of 30,000 persons, yet frequently its 20 operator positions are flooded with calls. In a nearby room, high speed teletypes offer fast, efficient service at a fraction of the cost of a phone call, yet are working at only two-thirds capacity.

Now under careful scrutiny, telephone-telegraph costs are another of the areas singled out

(Continued on Page 2)

Mgt. Club Will Hear Glenn, Carpenter

Astronauts John Glenn and Scott Carpenter and Col. John Powers will be guest speakers at a special General Dynamics/Astronautics Management Club meeting June 28.

Scheduled for El Cortez Hotel, the dinner meeting will be for club members only. Astronautics ID cards, as well as tickets, will be required for admittance.

Glenn, a Marine Corps lieutenant colonel, and Carpenter, a Navy commander, made the first and second United States orbital flights after being fired into space aboard Astronautics-produced Atlas missiles. Colonel Powers is information officer for Project Mercury.

Astro Offers Free Tickets To Space Films

General Dynamics/Astronautics employees and their families may see themselves and their products in action this week and next at three special "Evening at the Movies" sessions announced this week.

All are free to employees.

Featured will be the Astronautics-produced "Friendship 7" film on Col. John Glenn's historic orbital flight and "Star Builders," a unique film devoted to employees at work throughout Astronautics.

The Orpheum Theater, downtown, has been booked for three showings Friday (June 22). Night shift employees may attend a 12:30 p.m. showing with doors opening at noon. Evening performances will be held at 7 and 9 p.m. with doors opening at 6:30 and 8:45 respectively.

State Theater on El Cajon Blvd. will show the same films on June 26, while the Roxy Theater, Pacific Beach, features the bill June 27. Two performances will be held at each lo-

(Continued on Page 2)

MAN OF YEAR—Marty Stutz, who won ARA's "Award of Year," shows gift to Jack Boyle, outgoing president, and Mrs. Boyle.

ARA Volunteers Earn Praise From Dempsey

Special tribute was paid this month to volunteer recreation leaders at General Dynamics/Astronautics.

Hosting a June 1 dinner-dance at ARA Clubhouse were President J. R. Dempsey, and members of his staff. Honored guests were Astronautics Recreation Association Employees' Council members and their ladies.

"In the extremely fast pace set by the kind of business in which we are engaged, the opportunity for group relaxation is very important," Dempsey told the guests. "We keep very busy during the day and we need some organized method to 'unwind' after the hard work our jobs demand of us.

"Recreation is, therefore, an important adjunct to our business —and the enthusiasm with which this group (ARA) engages in it is remarkable," he added.

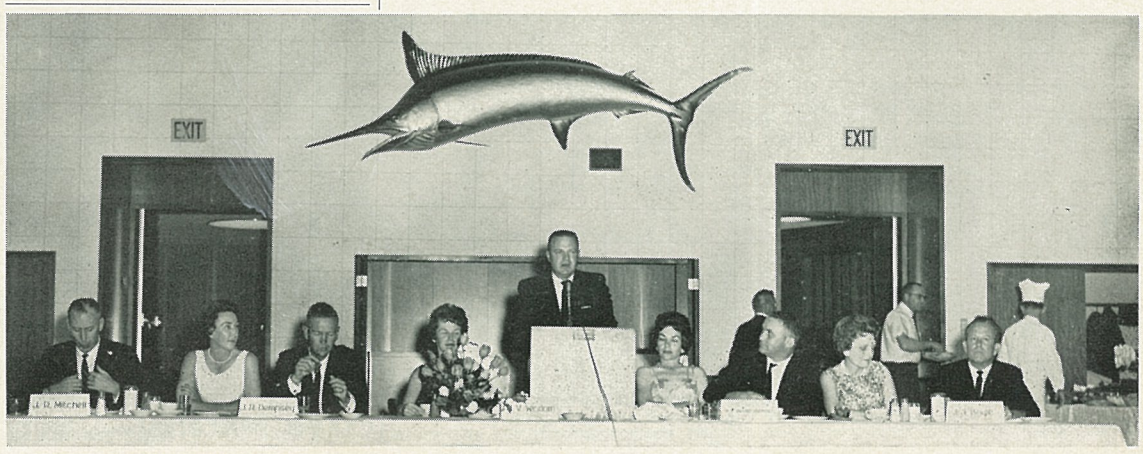
Dempsey said he was "impressed" by the ARA Recreation Area and clubhouse. He indicated outsiders have been "amazed" by what has been accomplished on weekends.

"I am impressed, but not really amazed, because I know this development is truly indicative of the kind of people we have—at Astronautics and in ARA," he added.

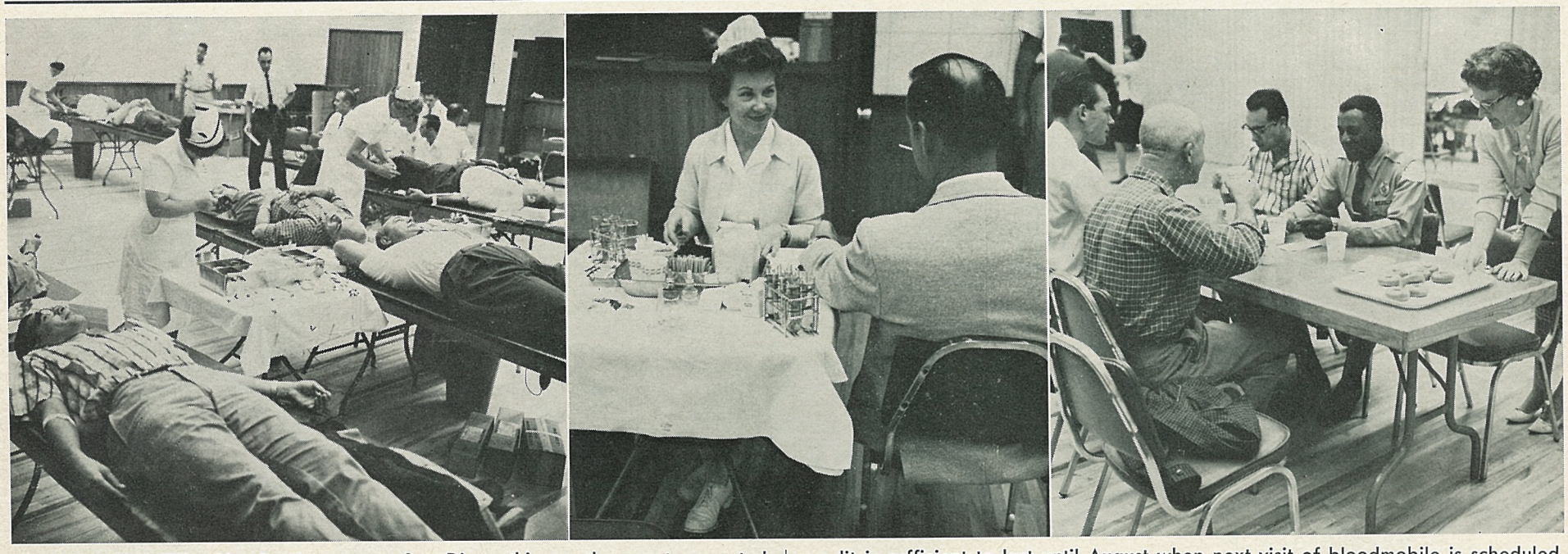
M. V. Wisdom, director of industrial relations, was emcee for the evening.

He traced ARA accomplishments over the past four years,

(Continued on Page 6)



HEAD TABLE—M. V. Wisdom, director of industrial relations, was emcee for annual banquet honoring ARA Council members at GD/Astro. President J. R. Dempsey was main speaker.



WELCOME GIFTS—Blood volunteers at San Diego this month were transported by bus to ARA Clubhouse for donations. Total of 130 pints was collected. Current credit is sufficient to last until August when next visit of bloodmobile is scheduled. Blood is made available when needed by GD/Astro people and families.

Log Book Entries

Promotions

MAIN PLANT

Promotions to or within supervision effective June 4.

Dept. 101, Data Processing: To research group engineer, A. J. Owens. To data processing supervisor, V. A. Vella.

Dept. 130, Industrial Relations: To guard lieutenant, R. Wait, G. L. Weaver Jr. To captain, J. M. Aguilar.

Dept. 141, Quality Control: To asst. supervisor process control, W. C. Wilhelm Jr.

Dept. 154, Resources Planning & Control: To facilities requirement supervisor, D. J. Markovich.

Dept. 197, Subcontract Audit: To accounting asst. supervisor, G. M. Washburn. To accounting supervisor, F. M. Wynkoop.

Dept. 250, Plant Engineering: To asst. foreman, D. J. Buck.

Dept. 330, Support Logistics: To chief of support documentation, R. F. Campbell.

Dept. 351, Field Modification-Operations: To support calibration group engineer, A. W. Wiest.

Dept. 355, Field Modification-"F" Operational bases: To chief of product support-base, D. F. Hamm, J. H. Wilkinson.

Dept. 521, Engineering Administration Sub-Dept.: To engineering services asst. supervisor, W. Calvin.

Dept. 539, Design Liaison Section: To activation engineering asst. supervisor, V. T. Guntlow, Leroy Hinckley. To activation engineering asst. supervisor-base, V. F. Powell, R. N. Pripps, E. L. Jeffers. To asst. design group foreman, R. L. Harris. To asst. design group engineer, J. J. Anderson Jr., W. E. Kauder. To design group engineer, D. E. Halford, C. W. Tucker.

Dept. 549, Electronics Design: To electronics group engineer, M. M. Chazotte Jr., R. C. Packer.

Dept. 556, Electronics Design: To electronics group engineer, L. Board. To design group engineer, R. W. Weber.

Dept. 565, Engineering Test Station: To asst. test lab group engineer, F. M. Urban.

Dept. 603, Base Activation: To activation scheduling supervisor, A. R. Johnson.

Dept. 851, Material Services: To purchasing services supervisor, L. R. Hensler.

Dept. 979, Centaur Launch Operations: To flight test group engineer, T. C. Chitty, J. S. Miller, T. P. Hill, E. F. Sharp Jr.

AFMTC

Dept. 571, GD/Astronautics Operations: To flight test group engineer, A. S. Jossi. To asst. flight test group engineer, J. H. Stokes. To asst. foreman, E. L. Hayes.

DYESS AFB

Dept. 618, GD/Astronautics Operations: To asst. foreman, W. R. Dunn. To launch complex supervisor, K. B. Clark, F. A. Rowland. To launch complex asst. supervisor, H. Erbe Jr., C. W. Purdy. To production control foreman-base, J. L. Leonard.

LINCOLN AFB

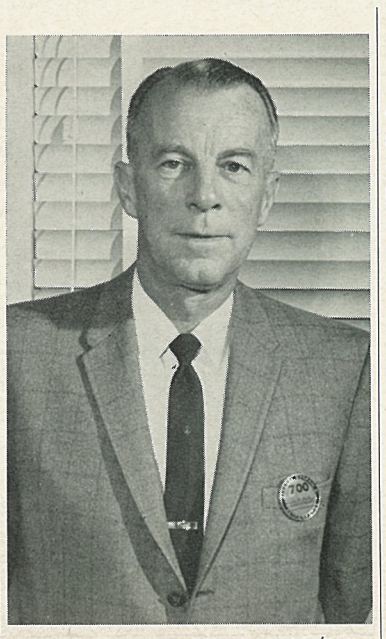
Dept. 616, GD/Astronautics Operations: To launch complex asst. supervisor, B. T. Lucas.

PLATTSBURGH AFB

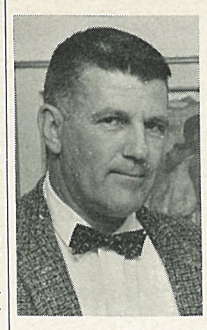
Dept. 620, GD/Astronautics Operations: To safety supervisor-base. C. R. Andrew. To launch complex supervisor, E. A. Fish.

WALKER AFB

Dept. 619, GD/Astronautics Operations: To launch complex asst. supervisor, F. E. Rogers.



J. M. Kline, Dept. 700-0 at GD/Astro, recently received congratulations on 30th anniversary with company.



L. P. Smith, GD/Astro Dept. 344-3, has completed his 25th year of service. He received service emblem from Mort Rosenbaum, executive vice president.

Births

MAIN PLANT

ORRICK—Daughter, Lisa Ann, 8 lbs., 3 oz., born May 29 to Mr. and Mrs. D. L. Orrick, Dept. 732.

ROYAL—Son, Brian Jonathan, 7 lbs., 8 oz., born March 13 to Mr. and Mrs. Walter W. Royal, Dept. 250-5.

SANDOVAL — Daughter, Jacqueline Renee, 7 lbs., 11 oz., born May 26 to Mr. and Mrs. J. P. Sandoval, Dept. 733.

ALTUS AFB

ELY—Son, Darrin Brock, 9 lbs., 11 oz., born May 10 to Mr. and Mrs. E. S. "Butch" Ely, Dept. 617-5.

Deaths

MAIN PLANT

FLIGEL—Leroy E., Dept. 410-0. Died June 1. Survived by wife, Gladys.

GUSTIN—Raphael E., Dept. 154-2. Died June 3. Survived by wife, Leona.

DYESS AFB

EMOND—Jack, Dept. 618-1. Died June 9. Survived by wife, Janice.

Service Emblems

MAIN PLANT

Service emblems due during the period June 16 through June 30.

Twenty-five-year: Dept. 250-0, J. F. Speed.

Twenty-year: Dept. 141, Samuel Braun, Paul Sletnar; Dept. 250-5, R. S. Montgomery; Dept. 305-0, Helen A. Cederwall; Dept. 344-3, E. W. Coleman; Dept. 545-7, L. B. Chabot.

Fifteen-year: Dept. 140-1, Spiro Koulaxizes; Dept. 401-2, W. R. Bledsoe; Dept. 756-0, C. F. Stancil; Dept. 758-0, Leo Mazon Jr.

Ten-year: Dept. 101-1, H. C. Heath; Dept. 222-2, Lucille M. Sundstrom; Dept. 250-1, G. R. Bone; Dept. 290-1, W. M. Williams; Dept. 321-5, R. A. Drollinger; Dept. 322-8, C. L. Rector; Dept. 324-1, V. A. Newcomb; Dept. 333-3, Doris H. Branch; Dept. 343-5, D. W. Cummings; Dept. 344-3, C. R. Raedel; Dept. 351-3, K. R. Farnsworth; Dept. 401-2, A. P. Pedo; Dept. 454-0, Sam White Jr.

Dept. 510-5, E. H. Wrench; Dept. 521-0, Margaret M. Dumler; Dept. 535-7, R. A. Cox; Dept. 541-5, R. A. Tobias; Dept. 549-3, R. C. Packer; Dept: 580-7, F. J. Michael; Dept. 596-4, O. J. Neller; Dept. 597, R. A. Jankowski, Karl Kachigan, F. D. Winston; Dept. 601-0, R. T. Damm Jr.; Dept. 706-0, J. L. Flynn; Dept. 759-0, B. E. Fuller; Dept. 771-0, W. V. Marshall; Dept. 783-0, Eleanor T. Weeks; Dept. 812-2, E. J. Daverin.

DYESS AFB

Ten-year: Dept. 618-2, M. L. Kerber.

SYCAMORE

Ten-year: Dept. 573-3, E. W. Ford.

VANDENBERG AFB

Ten-year: Dept. 576-3, J. E. Allcorn, J. R. Moore, R. O. Servis.

WALKER AFB

Fifteen-year: Dept. 619-7, Obie Gage.

Ten-year: Dept. 619, L. K. Hoots, J. W. Shortridge, D. M. Thomas, R. D. Weber.

Personals

MAIN PLANT

My sincere thanks to the many friends who expressed sympathy following the death of my mother.

Gene Harris, Dept. 592-0.

Astro Offers Free Tickets

(Continued from Page 1)

cation starting at 7 and 9 p.m. with doors opening at 6:30 and 8:45 p.m. respectively.

While the shows are free to employees and their families, tickets for specific performances must be obtained in advance. Tickets covering house capacity only will be issued with seating on a first-come, first-served basis.

Beginning tomorrow (June 21) tickets will be available at the main plant at: employee services; Bldg. 5 safety crib (Col. HI-1); Bldg. 4 library; and Bldg. 33 educational services office (Col. E-5).

At Plant 2 they may be obtained from the Bldg. 3 foreman's office at Col. C-23 or from Ed Schmidt at Col. C-17 mezzanine, Bldg. 2. At Sycamore Canyon they will be available through industrial relations, at Point Loma through Norman Floyd, Bldg. 1 office.

Astro employees at Plant 1 may obtain tickets from Molly Hutton, Astro security office, Bldg. 51, third floor "E"; while those at Fordham Bldg. may obtain them from Mary Stevens in W. F. Chana's office.

Save Material—Don't Throw Your Job Away!

General Dynamics NEWS

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* * *

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Total circulation of all General Dynamics NEWS editions, nearly 90,000.

Phone Call vs. a Wire: $5.10 Compared to 90c

(Continued from Page 1)

for special attention in an all-out cost reduction program at GD/Astronautics.

R. W. Kleinhans, office services general supervisor, who oversees telephone-telegraph operations at GD/Astro, has urged every user of these services to do so "thoughtfully."

"He should ask himself first if the communication is absolutely necessary," Kleinhans said. "Then, whether a written message could do the job, and finally, if a letter might not serve as well."

Assuming the communication is necessary, and that a letter will not suffice, the originator's first thought should be of teletype—either a commercial telegram or a message—sent over General Dynamics vast Private Wire System (PWS).

PWS now connects 97 stations via a 25,000-mile wire network reserved for General Dynamics exclusive use.

While the average long distance telephone call costs $5.10, an average PWS message is handled for only 90 cents!

"But while telephone costs rise, PWS service is not used to the fullest," Kleinhans said. "Our wire room can handle half again as many messages as we now handle, and the PWS service charge is the same whether we use it or not."

For messages to stations outside General Dynamics, PWS saves money through its "refile" service, by which a wire is sent to the PWS station nearest the destination, then by regular telegram the rest of the way.

A message from San Diego to New York costing $3.95 as a regular telegram, can be sent by PWS to the General Dynamics switching center in New York, and refiled as a "local" message for only $2.25.

And PWS is fast. An average message is transmitted, sender to recipient anywhere in the country, in less than an hour.

"But if only a telephone call can do the job, the caller should plan his call and assemble any necessary materials before he lifts the receiver," said Kleinhans. "This saves time—and cuts phone bills."

Last month GD/Astro paid a phone bill of $202,903.82! More than 28,000 long distance calls (including leased line calls charged to bases) passed through the massive switchboard in Bldg. 4.

And often these calls were lengthy. Anyone attempting to match time spent at GD/Astro on a week's long distance calls would have to talk eight hours a day, five days a week for more than 19 weeks.

As more and more employees joined Astronautics during the last year, telephone usage rate climbed. In May, 1961, only 17,400 long distance calls were handled compared to this year's 28,000. Some of these could be economically diverted to teletype, as seen by comparing the 27,500 message handled in May, 1961, with 30,300 (only 2,800 more) this May.

Personal calls—both incoming and outgoing—are another cause for concern, as they consume operator time and tie up lines needed for business.

"Employee cooperation is the only answer to cost reduction in the telephone-telegraph area," Kleinhans concluded. "If every caller would shorten each long distance call by only one minute, annual savings to GD/Astro would approach a quarter-million dollars!"

Next 60 Days Crucial Period

(Continued from Page 1)

come key factors. Each must be handled promptly or the overall system slows or grinds to a halt. Even the smallest task involved is now important.

Ironically, the final 10 per cent of parts needed at each base normally have the greatest impact on completing the base, Prophett said.

"Communication between all departments and at all levels is essential, if every individual is to share equally in this work," Prophett added. "We lack the time to assume something has been done or someone has the word on what to do and when."

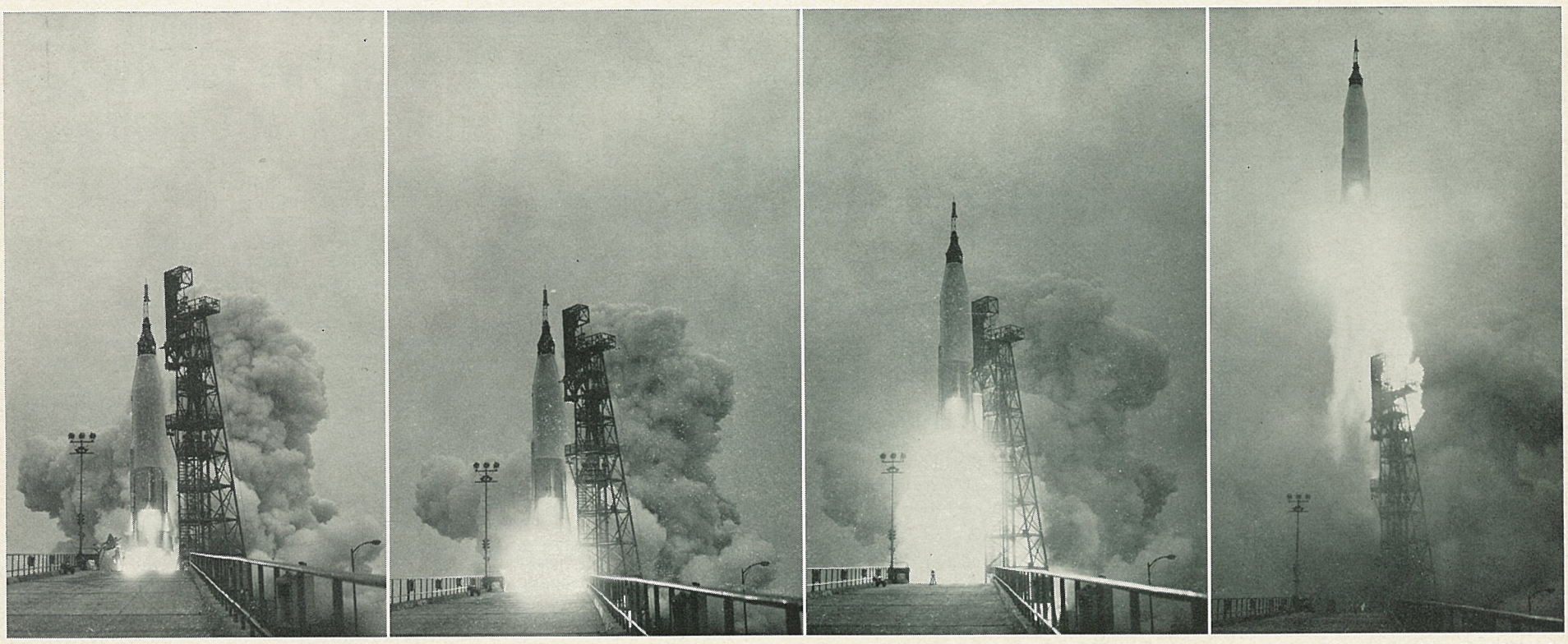
Other areas are equally important. Timely engineering redesign as well as prompt response to unexpected situations and requests involving engineering work is essential. Quality control at the vendor, the main plant and in the field share a brunt of the burden. Product support is all-important in speeding along pre-operational spares, in quicker turn-around of inspection rejected items and in quicker return of repaired items.

From experience gained in previous base activation and learning curves established, a bright point emerges in the program. It represents a challenge to every Astronautics employee.

"If every individual performs as needed, there is a very good possibility we can complete portions of this program **AHEAD** of contractual schedules," Prophett said.

"As we seek future contracts in a highly competitive field, this factor alone should make every individual's efforts worth while," he added. "I know we can depend on every department and every individual involved. We have many dependent upon the outcome."

"Let's plead the 5th Amendment."



TARGET: SPACE—Dramatic series of photographs made by automatic range cameras shows launch of Mercury-Atlas which lifted Astronaut M. Scott Carpenter into earth orbit. Astro team of Test Conductor Calvin W. Fowler, two assistant test conductors, about 15 engineers, 40 technicians and 10 inspectors handled launch. Entire mission force numbered about 2,500 men including Atlantic Missile Range, tracking station, NASA, Air Force, Navy and Marine personnel.

First Production Part On C-141 Job Machined

First production part for the C-141 empennage was machined early this month at General Dynamics/Convair as preliminary work stretching over the last few months began to take concrete form.

The first part, a vertical stabilizer rib, was cut on an automatic Giddings & Lewis skin mill at GD/Convair Plant 2 after tapes were proofed out in styrofoam and then in proofing material.

Each of the 15 different ribs in the vertical stabilizer and the 18 in the horizontal stabilizer will go through the same process, explained G. E. Nuss, tool engineering general supervisor.

All of the ribs, cut by automatic numerical control methods, will be one piece. If made by conventional means, 10 pieces would be necessary for each assembly. Thus, instead of approximately 330 different parts in each empennage, there will be 33.

The numerical control tape method of machining has resulted in an important weight saving in manufacture of parts for the C-141 tail, being done at GD/Convair under a subcontract for Lockheed-Georgia Co., prime contractors on the AF cargo plane, said J. M. Adamson, C-141 project manager.

After programmers have produced the tapes for each part, a styrofoam part is machined as first test step. This can show, often within 30 thousandths of an inch, if the tape will produce an acceptable part, explained Harry Cooper, tool engineer in charge of numerical control section.

Next, the tape is used to cut a part of proofing metal, cheaper type of aluminum alloy than actual production material. Incidentally, an inspection report showed that the first vertical stabilizer proof part was acceptable after the first test run.

Finally, an actual part from production material is machined.

Second part to be cut from production material, a horizontal stabilizer rib, is due to go on the automatic milling machine some time this week. Tape has already been proofed out with styrofoam and proofing material.

Tapes for each of the various ribs will be checked out over the next few months with setups maintained on the machines at Plant 2 so that production parts can be run concurrently.

★ ★ ★

C-141 Project Folk Briefed on PRESTO

A series of briefings on PRESTO reporting system at GD/Convair began yesterday (June 19) for people connected with the C-141 project, under auspices of educational services.

The 1½-hr. lectures explain the GD/Convair-developed Project Release Status Operation, used as a complement to PERT (Program Evaluation Review Technique) in reviewing progress of a program during development stages.

W. F. Weidenfeller of educational services is conducting the current training which ends June 29. Supervisors who wish to enter personnel are asked to contact him at ext. 491, Plant 1.

GD/Astro Car Carries License 'JET 990'

Larry Janson of General Dynamics/Astronautics (Dept. 535-7) is one of the lucky ones—he takes a JET 990 to and from work!

But he travels just like all of us—on the ground. Janson's California license plates are JET 990. He's had them for almost two years.

28 From GD/FW Earn Masters

Twenty-eight GD/Fort Worth employees were awarded advanced degrees May 28 under the SMU Graduate Program.

Receiving master's degrees in engineering were: J. E. Aaron and R. D. Stanford, Dept. 6, (civil); W. F. Ekern, Dept. 6, (aeronautical); and S. V. Glorioso, G. M. Goodwin, M. J. Tilly and J. J. Walker, Dept. 6, (nuclear).

Master's degree in engineering administration: D. C. Hamilton, C. A. Hardy, P. Shannon, L. E. Wilson and O. W. Wood, Dept. 6; J. F. Holder, Dept. 22; and H. D. Olsen, Dept. 86.

Master's degree in aeronautical engineering: J. H. Brown, E. F. Cox, and D. C. Wade, all of Dept. 6.

Master's degree in civil engineering: C. E. Archer, Q. R. Owen, G. A. Rose, R. J. Schmigle, and R. J. Wren, all Dept. 6.

Master's degree in electrical engineering: J. P. Sutton, Dept. 6.

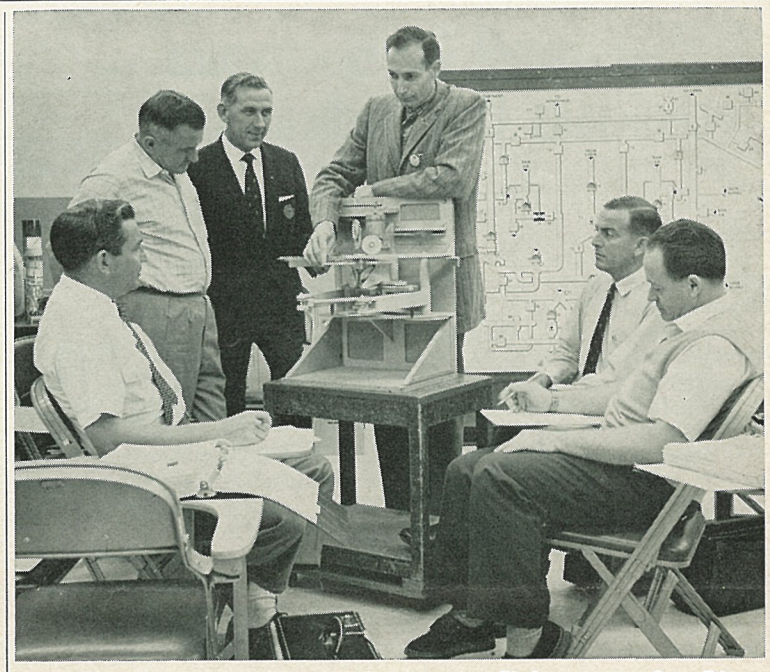
Master's degree in mechanical engineering: J. H. Brown, E. F. Love, W. B. Manousos, and T. E. Phillips, Dept. 6 and N. C. Stranberg, Dept. 12.

Minnesota U. Youth Wins Convair Award

Roxie E. Aho of Esko, Minn., won the annual GD/Convair Cadet Award at ceremonies held last month at the University of Minnesota Duluth.

C. H. Marier, GD/Convair technical representative based with the 11th Fighter-Interceptor Squadron, Duluth Air Base, presented the award to Aho for "maintaining a positive attitude toward scholastic work and service to the Air Force."

Officials of Duluth Air Base participated in the annual Provost Day parade and review of UMD's 420th AFROTC Group.



880-M CLASS—Cathay Pacific Airways flight men at San Diego for ground school training are, from left, M. J. McCausland, H. L. Fells, G. D. A. Rignall, Roger Chaney, GD/Convair instructor, L. J. Kloster, C. E. Eather, centering attention on model of aileron spoiler mixer assembly for control system.

Flight Crewmen From Cathay Pacific Taking Course in 880-M at San Diego

Five Cathay Pacific Airways Limited flight men arrived in San Diego early this month for a five-week ground school course on Convair's 880-M.

Instructors in General Dynamics/Convair production flight are giving a thorough familiarization on the Convair jet airliner now flying on the Hong Kong airline's routes.

First ground school for Cathay Pacific was held early this year for 18 crewmen before Cathay Pacific's 880-M went into service in mid-April.

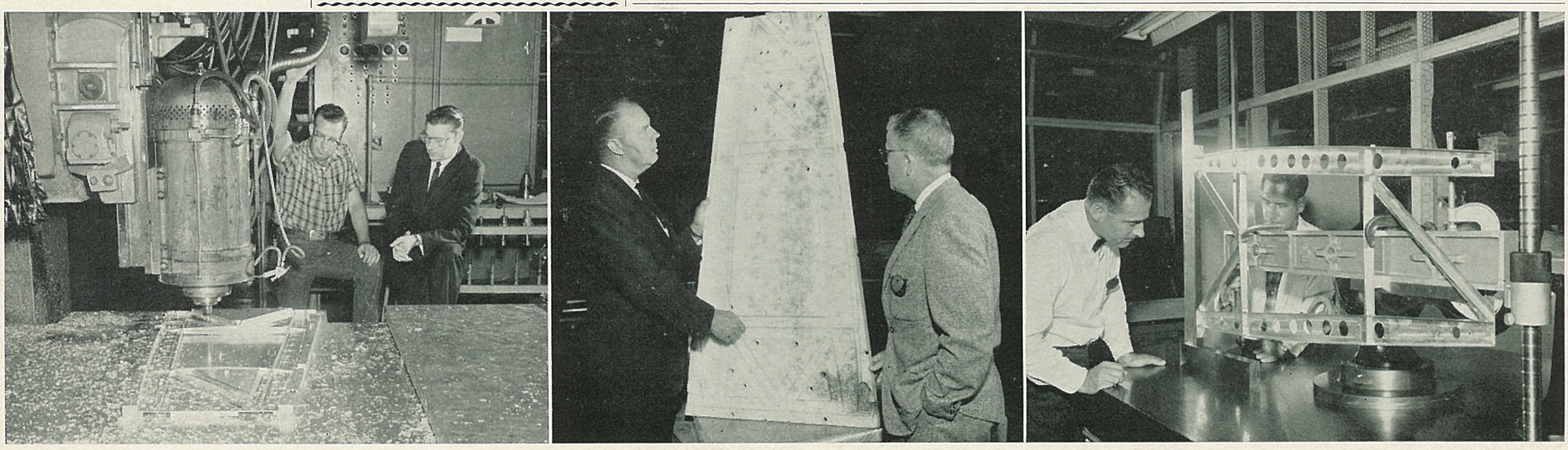
Taking the current training are G. D. A. Rignall, L. J. Kloster, C. E. Eather, captains; M. J. McCausland, first officer; and H. L. Fells, flight engineer.

Areas covered are general familiarization, emergency equipment, flight controls with J. B. Van Houten, instructor; power plant, fuel system, fire detection and extinguishing, hydraulic, air conditioning, pressurization, adverse weather, Roger Chaney; electrical and KIFIS system, R. E. Nixon; electronics, instruments, and auto pilot, H. L. Hendricks; performance and operating techniques, A. P. Wilson.

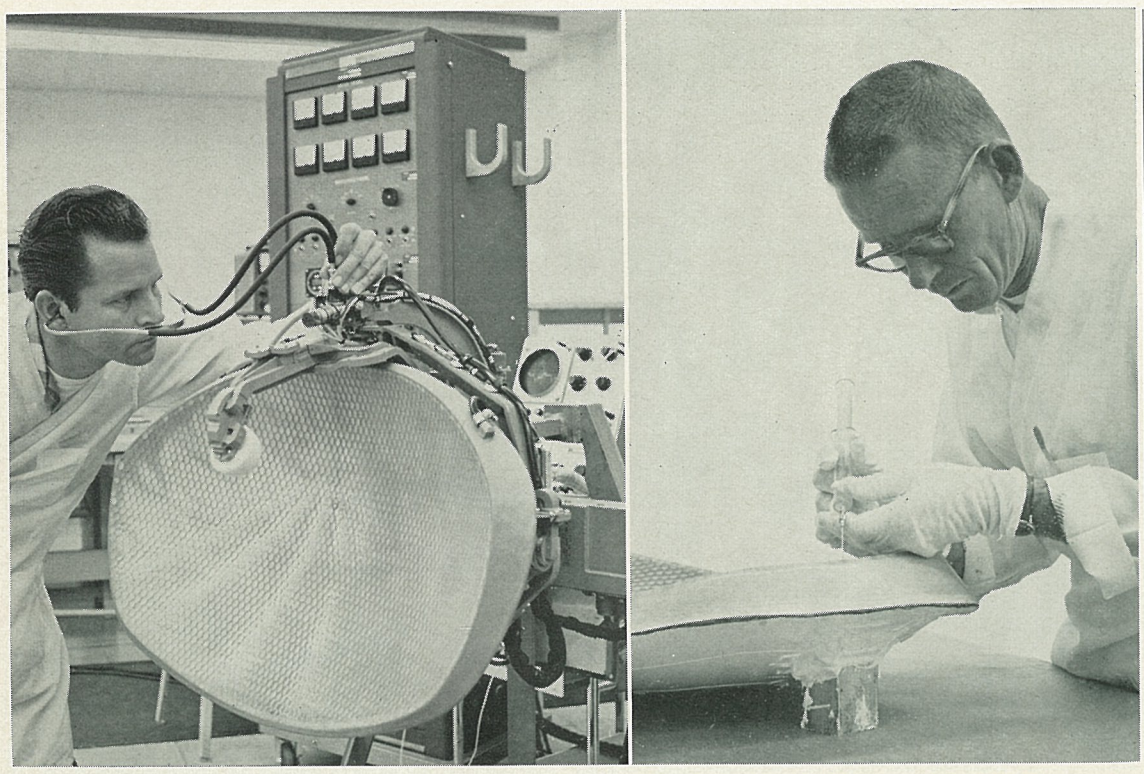
Two at GD/FW Named To Office in SAE

Two GD/Fort Worth employees have been named to top posts in the Texas Section, Society of Automotive Engineers.

Lloyd Halpenny, Dept. 89-0, is vice chairman of the section, and Dave Norton, Dept. 8, is vice chairman of the aerospace group.



PROOF OF PUDDING—Machining of first production part for C-141 empennage was milestone at GD/Convair early this month. At left, R. L. Patrick, machine operator, and Harry Cooper, tool engineer responsible for numerical control activities on project, check first machined rib on bed of automatic Giddings and Lewis skin mill at Plant 2. In center, G. E. Nuss, tool engineering general supervisor, and N. P. Pearson, C-141 superintendent, examine styrofoam pattern used to check out first tape. At far right, B. A. Buffat, Plant 2 inspection supervisor and James Corbett check first metal proof part on angle computer for dimensional accuracies.



STEADY, DOCTOR—Borrowing tools from medical profession, Chuck Clagett, left, GD/Electronics technician in servo test at San Diego, uses stethoscope to catch "heart beat" of component; while at right Ray Richmond, GD/E plastic fabrication technician, puts into effect bright idea of eliminating air pockets with shot of resin.

Scalpel! Hypo! GD/Electronics Technicians Use Medical Aids

White-robed "doctors" in General Dynamics/Electronics test areas at San Diego are using familiar medical aids as they diagnose assembly ailments and inject vital fluids into delicate instruments.

Stethoscopes and hypodermic needles, usually associated with a physician's office, are seen in the hands of electronic assembly technicians as they go about their business of isolating strange noises on the one hand, and filling in tiny air leaks, on the other.

The instruments landed in GD/Electronics assembly test sections more by accident than design, said John Wahl, supervisor of systems test. A GD/E technician stumbled on the idea of a stethoscope for isolation of sounds as he thumbed through a surplus catalogue looking for playthings for his young son.

Once tried, it proved a valuable assist in detecting such trouble areas as faulty gears, noisy bearings in actuators and motors before components were incorporated in electronic assembly systems.

Wahl explained that amplifying qualities of a stethoscope help detect foreign material or moisture which cause arcing in wave guides.

Also, a stethoscope can quickly pinpoint air leaks around the edge of plastic reflectors, determining whether the leak is internal or external around the inlet vacuum ports. If external, repair can be made without complete disassembly, saving as much as 10 or 15 manhours, Wahl estimated.

Hypodermic needles serve their purpose in plastic fabrication as they are used to squirt resin into tiny holes along the edge of the plastic "dishes" to fill in air pockets.

GD/FW MAKES TWO GRADUATE AWARDS

Four GD/Fort Worth Graduate Awards of $1,000 each were recently awarded to two employees and two college students.

Employees receiving the annual award were George H. Brigman, senior physicist in applied research group of engineering, and Charles Tabor, aerosystems engineer.

Brigman, who holds a PhD degree in physics from the University of Texas, will take post-PhD studies in nuclear physics, general relativity and related topics at Princeton University. Tabor will work toward a PhD degree in math at Texas Christian University.

Non-employee winners of the award were:

Grady W. Paxton, student at the University of Oklahoma, who will work toward a PhD degree in physics at the same school, and Samuel N. Rea, who will work toward a PhD degree in mechanical engineering from Southern Methodist University. Rea, who holds a master's degree in mechanical engineering from SMU, is a previous Graduate Award winner.

"They're *lovely* . . . Your wife make them for you?"

JAL Flight Crews Will Take Training Course at Convair

Over 40 Japan Air Lines pilots and flight engineers will be brought to the United States this summer for special flight training under auspices of JAL at the GD/Convair plant.

First group of four pilots arrived at the San Diego facility the first week in June for their checkout in JAL's 880-Ms. Groups will be coming in every couple of weeks from now until the middle of September on a rotation basis, explained S. Mitsuoka, JAL resident representative at GD/Convair.

Two GD/Convair instructor pilots, L. C. Brandvig and D. M. Dunafon, will assist in actual flight training.

Present schedule calls for JAL crews to spend from 20 to 25 hours in the plane with three flights a day, if possible.

Last of JAL's 880-Ms were readied for delivery this month. One will probably be flown to Tokyo to join the three already in service while the other will be kept at San Diego for the training program.

Sciences Institute Hears Fatigue Talk

C. R. Smith of General Dynamics/Convair fatigue laboratory spoke late last month at a technical meeting of the Institute of Aerospace Sciences at the University of Wichita, Kan.

His subject was "Influence of Residual Stresses and Fatigue Factors on Aircraft Structures."

He will be attending the American Society Testing Materials meeting in New York June 25-28.

Dynamics Plants To Close July 4

General Dynamics people will enjoy a one-day holiday on the Fourth of July.

All plants will suspend work for that Wednesday, except for essential maintenance and industrial security functions. Work will be resumed at regular shift hours on Thursday (July 5).

Next issue of the **General Dynamics NEWS**, which ordinarily would be released that Wednesday, will be distributed the following day.

I. B. Hale in Europe For Firearm Talk

I. B. Hale, GD/FW manager of industrial security, will give a trick-shooting display and firearms safety talk at the Lions International Convention in Nice, France, June 21-23.

He warmed up for the international event with a shooting demonstration for members of American Society for Industrial Security June 14 in Schenectady, N. Y.

At Home on High

Trapeze Artist, Five-Foot-Two, Publications Aide at GD/Astro

She flies through the air—when she's not working as a publications aide in General Dynamics/Astronautics support documentation (Dept. 337-2) at San Diego.

Genger Koger is a five-foot-two Kentucky-born blonde, who, since she was in 7th grade, has been a practicing trapeze artist, first in school and later with Circus Hall of Fame, Sarasota, Fla. She still practices regularly on her own equipment in San Diego.

Besides aerial work, she has performed professionally with a water ski troupe, as a member of a synchronized swimming team in AAU competition, and on stage in ARA Astro Player's most recent production.

Genger's introduction to the performing arts came shortly after her family moved to Sarasota, Fla., winter quarters of Ringling Bros. Circus, when she was 5.

"The whole town is 'circus,'" Genger said. "Everybody in Sarasota is some kind of performer."

The local high school has a course in circus arts, and lists a "Sailor Circus" as an extra-curricular activity. A scout spotted Genger when she was 11. She joined the school troupe, and began appearing in weekend performances.

Starting as a "ground act" (adagio), she soon acquired a trainer and learned aerial acts, moving to heights up to 35 feet. During one summer she performed with Circus Hall of Fame, a circus-sponsored Sarasota institution, and later worked in Florida night clubs.

She has never used a net and has never fallen.

"Many professionals feel a net more dangerous than a straight fall," she explained. "When working high, we use 'spotters,' who run under you, collapse to the ground and break your fall in case of mishap.

"The first thing a trapeze artist learns is how to fall. Once a partner with whom I was working fell 18 feet and suffered only rope burns."

One stunt Genger has never mastered: swinging while hanging by her heels. "To hang, simply point your toes and hook your heels over the bar," she explained.

Other feats she lists as difficult include the "neck loop" stunt ("just put your head through a leather loop and hang there") and the "back balance with slide."

"In this one, you lie across the trapeze with the bar in the small of your back, then swing, and finally on the back swing slide down to wrap your ankles around the ropes and hang by them."

Out of the air and onto water, Genger also took up water skiing and for three years performed with a professional Sarasota troupe.

The swimming "bug" caught her when she moved to Minnesota where she was forced to limit trapeze work to occasional shows. Since coming to San Diego she has swum as a substitute performer at a local night club.

Maj. Gen. Davis Commands BSD

Major Gen. W. Austin Davis has been named commander of the Ballistic Systems Division, Air Force Systems Command.

Assuming his new command on July 1, Gen. Davis relieves Maj. Gen. T. P. Gerrity who has been nominated for a third star and reassigned.

Gen. Davis will be directly responsible for research, development, testing, procurement, production and site activation of present and future Air Force ballistic missiles, including the GD/Astronautics-produced Atlas.

Formerly commander of the AFSC's Aeronautical Systems Division, Gen. Davis has held such posts as director of procurement and production, AMC; director of procurement and production in the office of the Deputy Chief of Staff/Materiel, USAF; AFPR at Boeing; and chief of the aircraft and missiles section, AMC.

A native of Texas, Gen. Davis is a graduate of Texas Technological College; the Advanced Management Course, Harvard; and the Industrial College of the Armed Forces.

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A new rank and assignment is in the offing for the Air Force officer who has guided Atlas base activation activities over the past two years, Maj. Gen. T. P. Gerrity.

President Kennedy has nominated him for promotion to the temporary rank of lieutenant general. Promotion is subject to Senate confirmation.

Reassignment will find him taking over duties as Deputy Chief of Staff/Systems and Logistics in the Office of the Secretary of the Air Force, Washington, D. C.

Gen. Gerrity was appointed commander of the Air Materiel Command's Ballistic Missile Center on July 20, 1960—which on July 1, 1961, was reorganized as the Air Force Systems Command's Ballistic Systems Division in Los Angeles.

AIRBORNE—Diminutive Genger Koger, GD/Astro publications aide, has been doing aerial work professionally and "for fun" since she was 11. She also swims, water skis, and works with little theater group.

Astro Builds Facility For Radio Testing

An expanded facility for radio interference testing is in final stages of construction at General Dynamics/Astronautics with occupancy slated later this month.

Designed for use by the radiation systems section of electronic design (Dept. 549-8), the structure is a 40 by 100-ft. addition to Bldg. 18 at GD/Astro's Kearny Mesa plant.

It will be used for testing complete ground support equipment, missile systems, and satellites requiring electromagnetically shielded enclosures.

The new Bldg. 18 annex is of concrete block construction with a 40 by 40-ft. area at the northern end electrostatically shielded with a grounded sheet metal lining.

This portion will be used for testing large equipment which can be rolled inside through 17 by 20-ft. double doors at the north end. These doors are also sheet metal-lined to provide electrical continuity with the remainder of the room when they are closed.

Also included in the annex are a power room, "screen room" area, and an office area.

The power room contains batteries, power supplies and a motor generator, supplying the facility with 28-volt direct, and a variety of 440 and 115-volt alternating currents.

In the screen room area are three cubicles completely enclosed with copper screen, providing shielded test areas for small equipment. (Similar screen rooms in the basement of GD/Astro's Bldg. 4 have handled all radio interference testing to date, but are operating at capacity and cannot accommodate large equipment.)

The annex will be air conditioned, and as part of the project, the entrance ramp and access areas around the building will be paved with asphaltic concrete.

Construction is company-funded at a cost of about $56,000, with work under direction of GD/Astro's plant engineering (Dept. 250-2).

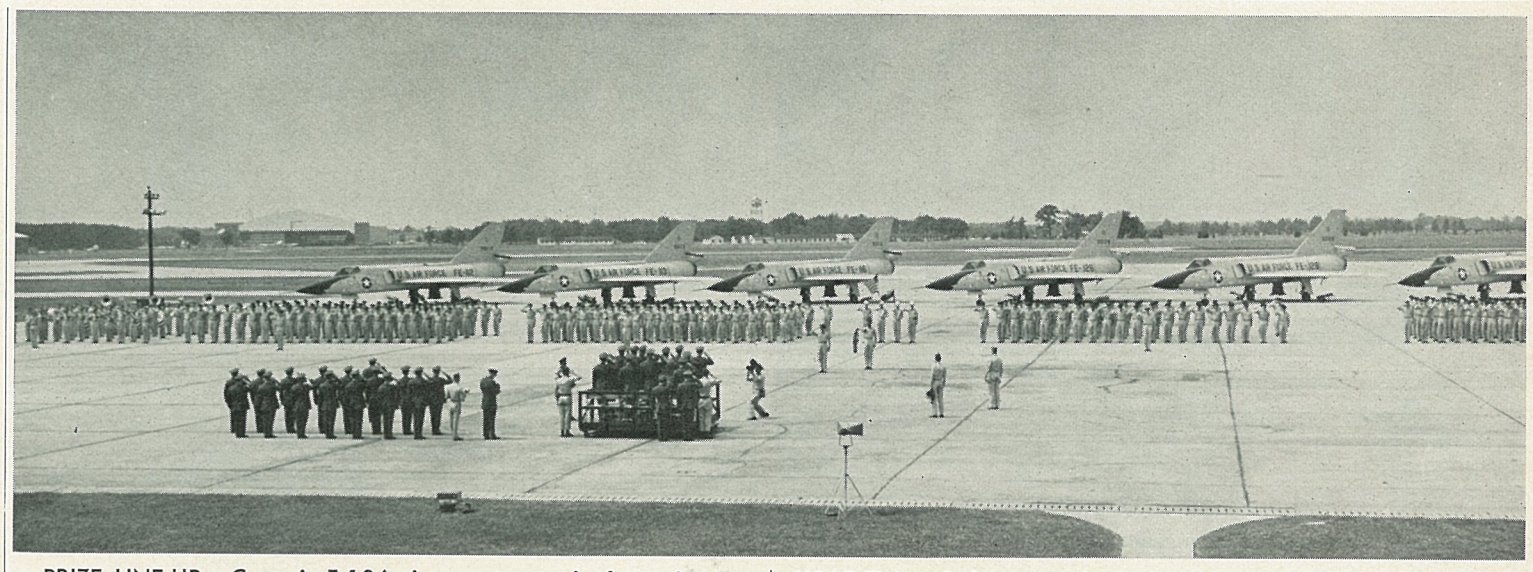
Design engineer on the project is Charles Davis Jr., with Paul Callahan, structural engineer, and Bob Hauer, electrical engineer. Field engineer is Dick Marvin.

Con-Trib Will Send Children to Camp

From 150 to 200 children—all from needy families—will be able to enjoy summer camp programs this year, thanks to the generosity of GD/Astronautics employees and their Con-Trib-Club.

A $3,000 grant has been made to six agencies which provide summer camping for youngsters. Con-Trib-Club funds will go to providing this experience for children who otherwise would be deprived of the opportunity.

Agencies sharing in the $3,000 disbursement include Salvation Army Camp; Jewish Community Center; Bayside Social Center; YMCA Camp Marston; Camp Fire Girls of San Diego County; and Girl Scouts of San Diego County (Camp Safari).



PRIZE LINE-UP—Convair F-106s in smart parade formation on runway at Langley AFB, Va., during recent presentation of coveted USAF Flying Safety award which went to 48th FIS second time in 18 months.

NMA Tourney Attracts 438

GD/Convair, GD/Astro and GD/Pomona golfers took part this month in the annual Southern California Management Club golf tournament, held over Torrey Pines south course.

A total of 438 golfers participated, representing a variety of different clubs. GD/Convair's Gerry Cox, assisted by Russ Davis, was tournament chairman. Art King of GD/Astro, Mrs., King, Harold Purnell, John Sentovic and Jack Boyle also helped run the tournament, as well as Rudy Halabuk of Ryan Aeronautical Co. who, with Joe Setran of Ryan-Kearny Mesa and a Ryan committee conducted the highly successful "special events."

Among Dynamics golfers Russ Davis was low with a 78, followed by D. K. Whynott of GD/Pomona with a 79. Others who collected prizes included: C. B. Bagaloff, G. Lang, G. E. Putness, P. Parker, C. C. Campbell Jr., E. Bourgeois, all of GD/Astro; J. J. Jodka, C. N. Crocker, C. Stafford, J. Murphy, L. E. Woll, D. R. Bryson, B. F. Ferguson, J. F. Ryan, L. A. Wood, all of GD/Convair; and J. D. Bohlman of GD/Pomona.

In the "special events," GD/Convair's Terry Kell, Dick Parsons and Bob Rowland dominated the "long drive" competition on No. 1, and G. E. Nuss knocked in the longest putt on No. 6.

Spanish Class Draws Crowd

A "standing room only" sign was out after crowds of language-minded General Dynamics people overflowed initial sessions of CRA-ARA "tourists" Spanish course in Balboa Park's Conference Bldg.

So many GD/Convair and GD/Astro people and their families turned out that the class has been divided into two sections. Jim Hardison, instructor, said that nearly 100 registered for the nine-week course June 5 and 12.

Now, all those with some previous knowledge of the language will meet Wednesdays for a review course while beginners will continue to attend Tuesday evenings.

Both sections are 7-9:15 p.m. in Room 11, Conference Bldg., Balboa Park.

The simplified course in Spanish, designed primarily for people intending to travel in Mexico, will culminate in an actual two-week trip Aug. 17-Sept. 2.

However, anyone can take the course without being obligated to sign for the Mexican tour, Hardison said. Price of the entire vacation trip by train from Mexicali to Mexico City and Acapulco and return will be $350 a person.

A motion picture of a flight tour from Tijuana to Mexico City and Acapulco via Guadalajara was shown at last night's session and will be rerun again tonight for the Wednesday class.

Although registration deadline was June 12, Hardison said that he still will take individual applications at his home after 7 p.m., phone BR-6-5805.

Machine Installed at GD/Fort Worth Drafts, Lofts Engineering Drawings

GD/Fort Worth is pioneering in use of a machine that drafts and lofts engineering drawings with unprecedented speed and precision.

The machine is a numerically controlled drafting and line plotter, capable of executing intricate drawings as fast as 10 feet a minute. It is believed to be the first in industry.

Tape used to make engineering drawings can also be used as basic information for the magnetic tape used in making finished parts and tools.

In one study, GD/Fort Worth engineers pitted the manual method against the new machine method for producing contour drawings of an aircraft wing spar.

Result: a cost of $2,459 using the manual method, compared to a cost of $1,809 using the machine — a 35 per cent saving in manhours and a 26 per cent saving in cost.

Savings in this test would be conservative compared to those that can be made on some other type projects, according to A. Ocone, group engineer in basic lines who is in charge of engineering department work on the machine.

"This method of operation provides an exact approach to the vast number of design problems resulting from an ever-increasing demand for precision manufactured parts," said Ocone.

Working area of the drawing board is five feet by 12 feet. This enables engineers to make a full-scale drawing for many of its aircraft and missile parts.

The machine can produce mirror-image or reverse drawings, as well as isometric projections and enlarged or reduced drawings. Drawings can be made from pen, pencil, or stylus—on vellum, glass cloth, mylar or scribe-coated surface.

In producing the tape for an engineering drawing, basic dimensions and contours are prepared in a design layout. This information is translated via APT III—an industry-wide symbolic language for numerical control — onto tabulating cards. A magnetic tape is made from these cards.

A punched-paper tape is then produced for use in the control units of the Model 700 drafting machine. An operator can either punch a button and let the machine do all the work, or he can operate the machine manually.

"Since drawings are more precise than previously, greater reliability can now be built into parts and tools," Ocone said. "Pertinent data can also be produced for engineers to aid in predicting performance of the complete vehicle — aircraft or missile."

Another virtue of the machine, Ocone said, is that it enables drawings to be supplied immediately to quality control men who check parts against drawings for accuracy.

"The day has come," Ocone says, "when a designer can prepare certain specifications for electronic computer processing and the result is a complete dimensional analysis printed out, a tape to be used for automatically making the part, and a drawing for reference."

General idea for the numerically controlled drafting machine was envisioned early in 1960. Specifications were prepared by Ocone and J. C. Starnes, manufacturing research and development supervisor with consultation between engineering, manufacturing research and development, tooling, electrical maintenance and engineering computer lab. The project was then submitted to industry for bids by means of U.S. Air Force procurement procedures.

Contract was awarded to Ekstrom, Carlson and Co. of Rockford, Ill., and the machine was installed in the GD/Fort Worth plant this spring, where it was given a thorough wringing-out.

New Security Manuals Issued To Four Dynamics Divisions

New security manuals embodying the latest Department of Defense regulations are being distributed within four General Dynamics Corporation divisions.

The newly-compiled manuals outlining operating procedures for safeguarding classified information will replace former security manuals at GD divisions, Convair, Astronautics, Pomona, Fort Worth. All divisions will have the manuals within the near future. Distribution has been completed at GD/Astronautics and department heads at GD/Convair began receiving that division's version the first of this month.

Basic content of the updated manuals was coordinated jointly with G. D. Higgins Jr., Corporate director of industrial security. Each division has included variations for its individual operating procedures.

"This manual is a tool to be used in fulfilling the security responsibilities of your job," said J. H. Famme, GD/Convair president, in the foreword of that division's manual. "Read it. Study it. Use it. Do not gamble with our security."

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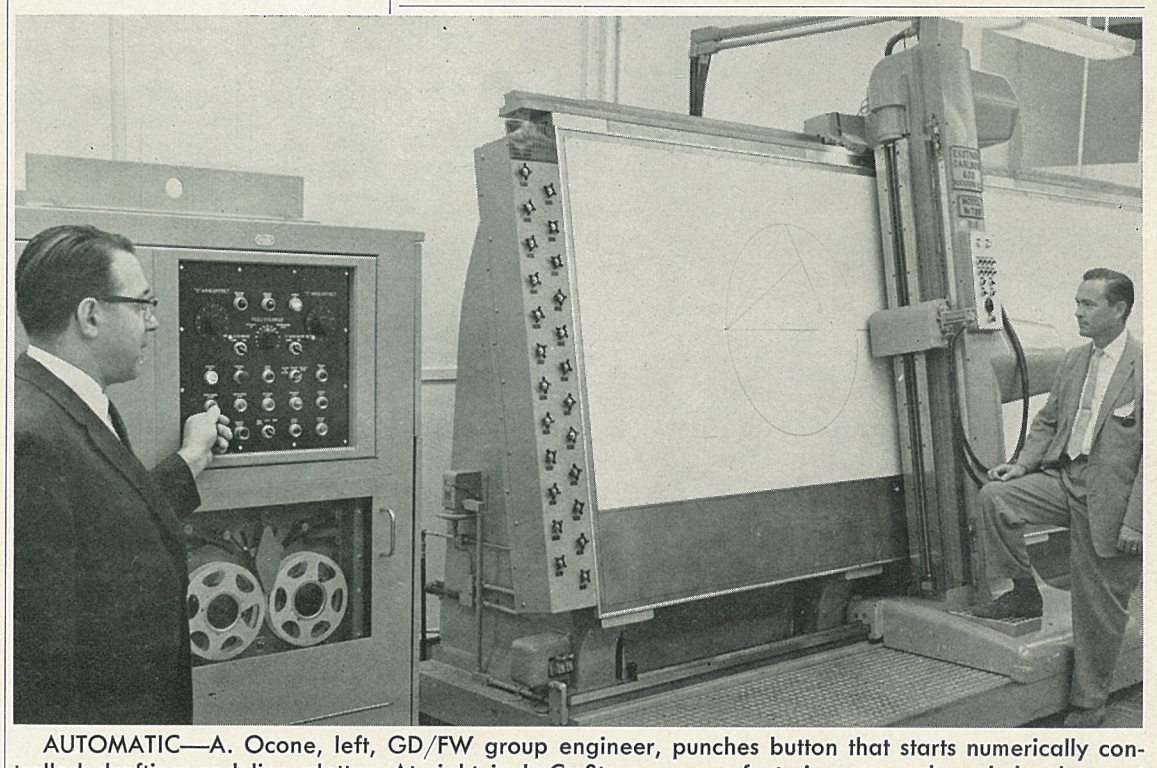
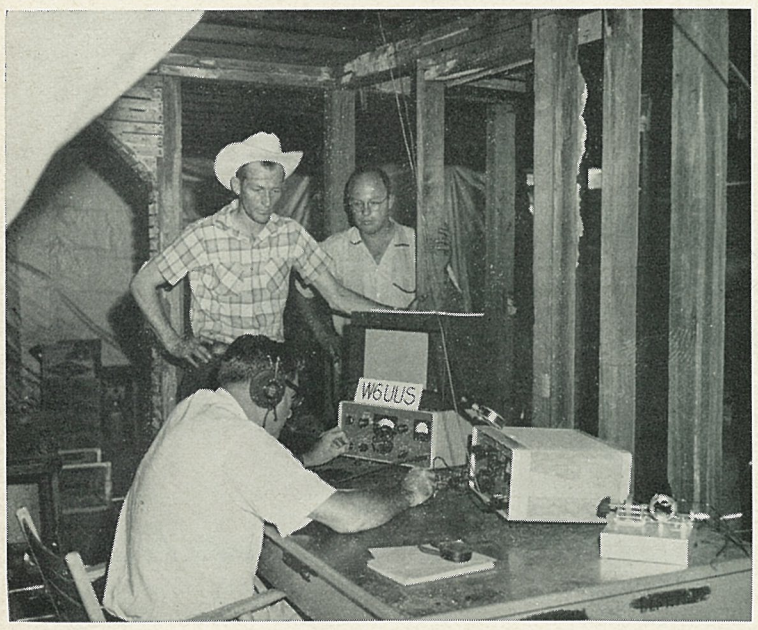
Patriotic red, white, and blue cover of the GD/Convair security manual received an award of merit from the Art Directors Club of San Diego at its annual exhibit this spring.

It was designed by P. J. Fitzgerald, chief of art and editorial at GD/Convair. Artist was Frank Freeman.



AUTOMATIC—A. Ocone, left, GD/FW group engineer, punches button that starts numerically controlled drafting and line plotter. At right is J. C. Starnes, manufacturing research and development supervisor. Buttons near Starnes are for manual operation, if desired.



HARD WAY—Using emergency power facilities set up in abandoned house, Frank Kemper mans ARA Radio Club station as Ron Jenkins and Hal Thompson look on during last year's annual Radio Field Day. This year's national event will be held June 23-24 using same location for ARA rig.

Annual Gun Club Shoot Set For Sunday, July 1

Winning trophies requires skill, but having fun calls only for participation in the Industrial Recreation Council Gun Shoot to be hosted by CRA-ARA Gun Club.

This annual shoot, one of the year's top events for local nimrods, will be held at Gillespie Field range, Sunday, July 1. All General Dynamics shooters are eligible without entry fee.

Three events form the program, beginning with the 50-yard, 22-cal. rifle match at 8 a.m. Rounding out the schedule are two 50-bird events, skeet and 16-yard trapshoot, starting at 10 a.m. Entrants will be assigned to five-man teams for all events. A turnout of more than 15 teams is anticipated, said Jack Swank, CRA commissioner.

Trophies will be awarded first and second-place team members in all three events. Capping the honors is a perpetual trophy for each event, upon which names of winning team members will be inscribed.

Shooters are asked to furnish their own guns and ammunition.

Targets will be supplied by the Gun Club. Refreshments will be available at the grounds during the meet.

Entries may be made through Swank, ext. 2583, GD/Electronics Plant 1, or ARA Commissioner Ezra Johnson, ext. 2283, Astro main plant.

UNBEATEN SPACEMEN HUMAN AFTER ALL

CRA-ARA's top volleyball team, Spacemen, has come down to earth after winning both split-season titles in Industrial Recreation Council Friday League play.

They were dumped in their bid for an undefeated season, 15-12, 12-15, 15-10, by Park and Recreation June 1 at Muni Gym. Dept. 101 whitewashed Project Support 15-0, 15-0 in the other Friday League match.

Wednesday League results for June 6 saw Support Documentation skunking Convair Engineers 15-0, 15-0. Astronets beat City Engineers 15-10, 15-11, and Hounds squeaked by NEL 15-13, 12-15, 17-15.

Last Wednesday (June 13), Support Documentation (4-0) and Hounds (3-1) were vying for the chance to take on the Friday champs in the June 14 play-off.

Astro Gardeners To Host CRA Club

Both a new date and new location have been announced for the next meeting of ARA Garden Club.

Since the regular date is a holiday (July 4), the session has been rescheduled for 8 p.m., July 11. The group will meet in the auditorium, ARA Clubhouse, rather than at Balboa Park's Floral Bldg. as in the past.

Members of CRA Garden Club will be guests of the Astro group for a tour of the Clubhouse and ARA Area. ARA Commissioner Everett Henderson has announced a special program and planning for the joint ARA-CRA Dahlia, Fruit and Vegetable Show to be held in August.

Glider Pilots Will Compete

Summer soaring season starts for General Dynamics glider addicts as they get primed for the coming contest June 30-July 1 at Skylark Field, Elsinore.

Contestants will come from Los Angeles, Antelope Valley, San Diego to take part in the two-day event. Sponsoring are Associated Glider Clubs of Southern California and the affiliated CRA Glider Club.

Merchandise prizes will go to high scorers whose ratings will be based on achievements during an open cross-country event one day and specified tasks the next.

General Dynamics people competing or working on committees are Sterling Starr, Duke Stallings, Gene Cain, DeVaughn North, Ernie Shattuck, all of GD/Astro; Walt Mooney, now of General Atomic; CRA Commissioner Gene Whigham of GD/Convair.

Night Courses To Begin Soon

General Dynamics people in the San Diego area are reminded of summer educational opportunities now available.

Courses in business administration, engineering, mathematics, psychology are offered at night through University of California Extension. Most classes are held at Roosevelt Junior High School. Summer session opens June 25.

Evening classes for the San Diego State College summer sessions, June 25 through Aug. 3, include subjects in humanities, physical science, psychology.

Summer classes at San Diego City College begin July 2 and include business law, business machines, business practice, data processing, economics, mathematics.

Educational services sections at GD/Convair, exts. 2568 or 491, Plant 1, and GD/Astronautics, ext. 1933, Kearny Mesa site, will give further information.

Saturday Salvage Schedules Listed

GD/Convair and GD/Astro salvage yards will be open for employee sales on the following Saturday morning schedule:

GD/Convair—June 23, July 7.
GD/Astro—June 30, July 14.

Sales hours are from 8 a.m. until noon.

Dynamics 'Hams' Getting Ready For Field Day

General Dynamics "hams" will join amateur radio enthusiasts across the nation and abroad as they take to the air waves June 23-24 during the annual Amateur Radio Relay League (ARRL) Field Day.

Goal of the event is for stations to make as many radio contacts as possible during a 24-hour period using emergency (battery and generator) power supplies.

Both CRA and ARA Radio Clubs are firming plans for participation.

ARA Radio Club will operate again this year from the Johnson house, an abandoned dwelling near Astro's Sycamore Canyon Test Site. In the 1960 Field Day the ARA station (W6UUS) ranked first in California and fifth in the nation with 8,442 points.

Astro Field Day arrangements are headed by Hal Thompson (K6ZPC), aided by R. Reed K6MFY) and E. Carson (W6UNM), antennas; H. E. Philby (K7DLR/6), power generator; and C. Parker, food.

ARA will transmit simultaneously with four stations operating from 80 meters to 2 meters (3.5 to 148 mcs).

Convair Radio Club's station will be set up in the new CRA Pine Crest recreation area on Hwy. 79 between Julian and Cuyamaca.

The dozen or so manning the operation will use the gas-powered generator at the site, said CRA Commissioner Jim Lack (WA6CYD).

Heading arrangements for the CRA group is Don Bain (WA6MRE) with L. D. Rush (K6QXN) in charge of antennas.

Anyone interested in observing is invited to visit the site any time during the 24 hours, from noon on Saturday until noon on Sunday, said Lack.

Final details will be worked out at tomorrow evening's (June 21) meeting in the CRA Radio Club headquarters, Harbor Drive, at 8 p.m. All members and other GD/Convair and GD/Electronics people with licenses are urged to attend to receive full instructions and maps locating position of the station.

ARA Volunteers Earn Praise

(Continued from Page 1)

with special emphasis on the past year. He attributed the successful recreation program at Astro to the efforts of council members and other volunteers, adding his personal thanks to all participating.

Marty Stutz, ARA square dance commissioner, was revealed as winner of the annual "Award of the Year." This award goes each year to the man or woman the council feels has done the most for recreation. J. R. Mitchell, chief of employee services, presented Stutz with a special desk set and acknowledged the work of two other candidates for the award, Jack Jones and Larry Beaver. Mitchell added his thanks to all recreation volunteers, with special attention to women.

Jack Boyle, outgoing ARA president, received from Wisdom an electric watch, suitably engraved, for his work over the past year. He acknowledged help he had received and expressed appreciation.

On behalf of all council members, Bryan Weickersheimmer, ARA president, thanked those responsible for making the party possible.

"Entertainment" was furnished by the "Lo Fi Combo," a group from the ARA-sponsored Hi-Fi/Music activity. Dancing followed.

Save Material—Don't Throw Your Job Away!

FINE ART—Techniques for producing attractive cakes are shown to Martha Buchan by Gil Hutter, left, and Jim Spain. Class will be sponsored by Astro Wives Auxiliary starting June 28.

Professional Instruction Offered Wives In Cake Baking and Tricky Decorations

Free professional instruction in cake and gelatin decorating will be offered in a series of classes sponsored by Astro Wives Auxiliary starting June 28, 9 to 10:30 a.m., in ARA Clubhouse.

Instruction for wives of all GD/Astro employees will be offered by Gil Hutter, Prophet Company cafeteria manager, and aides Jim Spain and Jack Malone.

"Instruction is free, but participants will be asked to supply their own materials at sessions following the first introductory meeting," Hutter said.

The course, planned for weekly meetings over a six to eight-week period, will include cake baking and construction, and decorating of cakes and gelatin.

Class reservations may be made by calling Mrs. R. J. Buchan, BR-8-8706.

Flight Schedules To Support Bases Calif. to New York

Direct San Diego to Plattsburgh AFB, N.Y. flights in support of General Dynamics/Astronautics base activation activities were begun this week using a newly acquired DC-6B aircraft operated by GD/Convair crews.

The aircraft will operate eastbound on Sunday, Wednesday and Friday, with westbound return trips on Monday, Thursday and Saturday.

Overnight (Flight 602) eastbound trips originate in San Diego, departing 6:15 p.m. (PDT); arrive at Omaha, Neb. at 11:45 p.m. (CST) with departure at 12:45 a.m. (CST). Plattsburgh AFB arrival is at 7:15 a.m. (EDT).

Westbound (Flight 603) the aircraft leaves Plattsburgh at 9:30 a.m. (EDT); stops at Omaha at 12:15 to 1:15 p.m. (CST); and arrives in San Diego at 6 p.m. (PDT).

On Wednesday and Friday, passengers from GD/Astronautics Convair 240s flying the Walker - Dyess - Altus - Schilling AFB circuit can make connections with the Plattsburgh-bound DC-6 at Omaha.

Employees traveling on company business may make flight reservations by calling GD/Astro travel center, ext. 4355.

$5,000 Donated To Cancer Fund

General Dynamics/Astronautics employees, through action of their Con-Trib-Club, have contributed $5,000 to the San Diego County Branch Cancer Crusade of the American Cancer Society.

Portions of the grant will make possible such services as local transportation for patients, dressings and supplies, medication, visiting nurses to administer drugs, speech therapy, etc. Due to a deficit in local budgets brought about by a below-goal fund drive, many of these services were in danger of being shelved for the year. Additionally, funds will be used in cancer research.

American Cancer Society is not a United Fund agency, but holds its own drive annually for funds.

PLANT APPEARANCE AWARDS PRESENTED BY J. R. DEMPSEY

April awards in General Dynamics/Astronautics monthly plant appearance contest were presented to representatives of winning departments by President J. R. Dempsey at his recent management meeting.

G. A. Grossaint, chief tool engineer, accepted the office area award for tool planning (Dept. 401-1 through -5), and R. T. Bauman, general foreman, accepted for the laboratory area winner, engineering test support (Dept. 756).

F. J. Parker, chief of stores and traffic, received the award for warehouse and crib storage areas (Dept. 833-1 and -3), while production area winner was machine shop (Dept. 731) with W. T. Herchold, general foreman, accepting.

The plant appearance program is designed to maintain and improve the neat, business-like appearance of work areas throughout GD/Astro. Monthly winners in each of four area categories receive plaques denoting their accomplishment.

Blueprint Reading Courses to Start

Two additional courses in Basic Blueprint Reading carrying San Diego City College credit for GD/Astro employees have been announced by educational services (Dept. 130-3).

Both classes will open July 3, convening for two hours on Tuesdays and Thursdays for a six-week period. A 2 to 4 p.m. class will be taught by Van Landingham, with R. H. Gruner conducting a 4 to 6 p.m. class.

Employees may attend either class outside working hours for an enrollment fee of $1. Prospective students are asked to schedule attendance with Laura, ext. 1933. Registration will be at the first sessions.

Banquet Scheduled As Fund Raising Aid

A benefit "Chinese Banquet for Project Concern" will be held at George Joe's Restaurant June 22, as a fund-raising effort for the non-profit project to establish medical missions in Hong Kong.

GD/Astro employees may obtain tickets ($5 includes donation and dinner) from S. M. Tuey, Dept. 545-5, ext. 3141. A no-host cocktail period will precede the 8 p.m. dinner with all proceeds to Project Concern.

Additional information is available from Tuey or George Joe, BE-4-8383.

ARA Calendar

(GD/Astronautics Recreation Association has some 40 activities in operation for employees. For information call ARA Headquarters, ext. 1111.)

★ ★ ★

ASTRO DIVERS — Meeting 7:30 p.m. July 11, ARA Clubhouse. Harold Riley will discuss water safety.

ASTRO LENS — Meeting 7:30 p.m. July 1, Photo Arts Bldg. Presentation on night outdoor photos.

ASTRO MOTORS — Meeting 7:30 p.m. today (June 20), ARA Clubhouse.

ASTRO NOTES — Chorus rehearses 7:30 p.m., Mondays, ARA Clubhouse.

COINS—First shift unit meets 7:30 p.m. today (June 20), and second shift unit at 1:30 a.m. tomorrow (June 21), ARA Clubhouse. Picnic at 12:30 p.m., June 24, ARA Area.

EXPLORERS — Meeting 7:30 p.m. today (June 20), ARA Clubhouse. Field trip June 23-24.

GARDEN CLUB — Meeting 8 p.m., July 11, ARA Clubhouse.

GOLF—Special sweepstakes at Cottonwood Country Club July 8. Register through June 27. Twilight Golf entries close June 22.

GROUP TRAVEL — Hawaii trip Aug. 18-Sept. 1. $300 per person includes transportation, hotel.

HI-FI/MUSIC — Meeting 7:30 p.m., June 27, ARA Clubhouse. Brooks Bros. Jazz Trio.

SINGLES CLUB—Patio party and dance 9 p.m., June 22; steak fry 7 p.m., June 24 in ARA Area.

SPORTS CARS—Meeting 7:30 p.m., June 21 at Gyrotor Inc., 10641 Prospect, Santee.

TENNIS — Novice tournament sponsored by CRA, July 7-8, 14-15, Morley Field courts. Astro entrants contact Ben Cendali, Sycamore ext. 58.

WIVES AUXILIARY — Free classes in cake, gelatin decorating start June 28, 9 a.m., ARA Clubhouse. Reservations with Mrs. R. J. Buchan, BR-8-8706. Outing for wives and children, 10:30 a.m., June 27, ARA Area.

'Patio Party' Set For Singles Club

ARA Singles Club, social group for single adults of all ages, will hold a "Patio Party" and dance at the main picnic shelter, ARA Area, at 9 p.m. June 22. A similar event was held earlier this month.

Admission is 50 cents, plus presentation of GD/Astro identification card. An orchestra will play for dancing; refreshments will be available for purchase at the Area snack bar.

On June 24 the group will hold a steak fry and smorgasbord at the picnic shelter starting at 7 p.m. Admission for this event is $1.50 with reservations made at the party June 22.

Additional information on Singles Club and both events is available from ARA Commissioner Gil Hutter, cafeteria manager, ext. 2170.

Players Schedule One-Act Play Series

A schedule of three one-act plays has been announced for the summer months by Astro Players, ARA drama club. The group will also enter the Old Globe One-Act Play tournament.

Astro Players is open to all GD/Astro employees and members of their families. Workshop sessions on all phases of theatrical production are held at 7:30 p.m. each Wednesday in ARA Clubhouse.

John Cone, director of the club's recent production "Wake Up Darling," has expressed appreciation to all who attended for their enthusiastic acceptance of the performance.

Additional information on Astro Players is available from ARA Commissioner Jack Garrison, ext. 765.

Sports & Recreation

ARA Softball Team Will Play Biweekly Exhibition Series

With an overall record of 17 wins, five losses, in two tournaments plus exhibition games, and two wins in San Diego City League (AAA) play, ARA's representative softball team has opened a series of biweekly exhibition games.

The games will pit Astro against top Southern California teams at 7 p.m., alternate Saturdays on the lighted field adjacent to ARA Clubhouse. On June 23 they will meet USS Sperry.

Spectators are welcome at the games, with no admission charge.

City League victories to date have been over Henry's Upholstering (2-0) and Marine Corps Recruit Depot (5-3).

Roy Neie was winning pitcher in the first game, allowing only two hits. A home run by Garfield Winers sparked offensive action.

In the MCRD contest, pitcher was Robert Lange. With the score 2-2 in the top of the eighth, Arch "Whitey" James hit a triple with two outs, two men on, to score on an error.

Neie took the mound in the bottom of the eighth and threw nine consecutive strikes for three outs.

Trapshooter, 14, Scores String

Steve Floore, 14, son of Vern Floore, GD/Astro Dept. 170-0, blasted 75 consecutive clay pigeons in CRA-ARA Gun Club's trapshoot June 10 at Gillespie Field. Young Steve, with only three months trapshooting experience, finished the day with the astounding record of 124 hits in 125 tries, Jack Swank, CRA commissioner, reported.

Steve will test his ability in top flight competition in the 15th annual Mullinix Memorial Shoot. The Mullinix, sponsored by Miramar Gun Club honoring Adm. H. M. Mullinix, is one of the top shooting events of the San Diego area and open to CRA-ARA shooters. It will be held June 22-24 at Miramar NAS gun range.

Trailer Clubbers Slate Two Outings

Outings at Oakzanita July 21 and 22, and at Big Oak Springs on Aug. 17, 18 and 19 are on the agenda for ARA Trailer Club.

The July trek will be directed by Wiley Clark, wagon master, and swimming and games will be featured.

Einar Johnson will lead the August trip, which like its predecessor, will include Trailer Club's traditional potluck supper on Saturday night.

Additional information on club activities is available from Steve Clark, Plant 2, ext. 1143.

Potluck Luncheon Planned For Wives

A potluck luncheon for wives of all GD/Astro employees will be held by Astro Wives Auxiliary from 10:30 a.m. to 2:30 p.m., June 27 in the main picnic shelter, ARA Area.

Billed as a "school's out" outing for wives and children, the event will feature games and prizes for youngsters, and coffee and punch furnished by Astro Wives.

Participants will be asked to provide their own table service and food.

Prospective participants have been asked to contact Mrs. Thomas Bangart, BR-8-5655, for an estimate of attendance.

Lensmen Schedule Illustrated Talk

"Pictures Outdoors at Night," an illustrated lecture prepared by Eastman Kodak, will be presented at the meeting of Astro Lens, ARA camera club at 7:30 p.m. July 1 in the Photo Arts Bldg., Balboa Park.

35 TEAMS COMPETE IN SOFTBALL LOOPS

Thirty-five teams in five leagues compete in this year's ARA Plant League softball program with games played nightly and Saturdays at two locations.

National, All Star and American Leagues of eight teams each comprise first shift play, while second shift units participate in Dayliter and Sunshine Leagues.

As of mid-June, the Atlas (Dept. 451-452) team led National League competition with five wins; Centaurs (Dept. 960) with three wins, and Chasers (Dept. 200) with three wins (one by forfeit) led the All Star League; and Checkouts (Dept. 773) with five wins led in the American League.

Midniters with two and one-half wins led for the second shift Dayliters League, and Comets (Dept. 250-1) recorded four wins in Sunshine League.

A usual week's plant league play consists of double-headers Monday through Friday nights at the ARA diamond, and on two diamonds at Oceanview Park. Both locations are also used for second shift play on Saturdays.

ARA Considers Entry In El Cajon Parade

Astronautics Recreation Association has announced plans to enter a float in this year's El Cajon Mother Goose Parade and is seeking employees with artistic ability to assist in its design and construction.

Plans call for an effort spearheaded by ARA Commissioner C. M. Ogle to prepare a self-propelled float on a Mother Goose theme. It will be of papier-mache construction on a wood and wire frame.

Ogle will select about a dozen persons to assist him in the work. Interested employees may contact him at ext. 2551 or after working hours at JU-3-1575 for details.

The group also seeks an automobile power plant and chassis, preferably with automatic transmission, for use as a propulsion unit.

Jazz Trio Will Play At June 27 Meeting

Brooks Brothers Jazz Trio will perform at the next meeting of ARA Hi-Fi/Music Club at 7:30 p.m., June 27 in ARA Clubhouse.

At its recent meeting, the group was entertained by Mason Williams, folk singer and instrumentalist, who performed on the 12-string guitar, banjo and recorder.

Roberto Torres, classical guitarist, originally scheduled to appear at that time, was unable to attend due to other commitments. Plans call for rescheduling his recital for mid-July.

Golfers Sign For Circle R

Starting times for ARA golf sweepstakes at Circle R July 21 and 22 will be available after July 1 from ARA headquarters, ext. 1111.

Veteran Astro golfer L. C. "Mac" McCord won low gross in the June sweepstakes at Fletcher Hills with 76, while a 77 and 78 from Jack Weaver and J. E. Ross respectively placed second and third in the 0-13 handicap bracket.

Bob Markey's 66 was low net in this class, with Gene Valasquez scoring 68, and Sam Ciolak and Ed McKenzie shooting 69s.

Low gross among the 14-20 handicappers went to Dick Torrence with 82, while C. Slinkard shot 83, and Jim Thelan and Phil Raney 84. P. Weddle had low net with 64, trailed by D. Siemon's 67 and a 68 from Russ Luker.

Paul Williams' 90 and S. Edwards' 91 led a 93 by Gladys (Mrs. Bob) Stevens, among low gross shooters in the 21 and up category. Mrs. Stevens scored 43 on the first nine, with a "birdie" on the par 5, 475-yard ninth hole.

Low net scorers here were H. Bain (68), Henry Araiza (69) and W. R. Morris (70).

Novice Tennis Tourney Set

General Dynamics novice tennis enthusiasts in the San Diego area have been invited to take part in a CRA-sponsored tournament at Morley Field courts July 7-8, 14-15.

Play will include men's singles and doubles, and, if at least 12 entrants register, women's singles.

All General Dynamics employees and members of their families who have not reached the finals or semi-finals of an ARA or CRA-sponsored tournament during the year are eligible to compete.

Additional information is available from CRA Commissioner Pete Beyrer, Plant 1 ext. 1245, or Ben Cendali, ARA commissioner, Sycamore Canyon ext. 58.

Car Club Will View Novel Sports Model

Latest thing in sports cars will be shown to members of ARA Sports Car Club meeting at 7:30 p.m., June 21 at Gyrotor, Inc., 10641 Prospect, Santee.

The local firm manufactures a new high performance car with aluminum V-8 engine, fiber glass body, and total weight of only 1,870 pounds.

A prototype will be displayed at the meeting and movies of test driving at Riverside will be shown. Additional information is available from Marion Carter, ARA commissioner, ext. 2092, or BR-4-1705.

Toastmasters Mark Tenth Anniversary

Fifty-two members and guests joined in the tenth anniversary observance of Dynamic Toastmasters Club 457 held May 24 at Stardust Hotel, Mission Valley.

Club president, J. L. Williamson, chaired the special meeting and welcomed special guests.

Mort Rosenbaum, GD/Astronautics vice president, spoke on advantages of Toastmaster training in clear speaking.

Toastmaster was M. L. Sweeney with J. L. Carr, topic master, and C. C. Campbell, Toastmasters District governor-elect, evaluator.

Speakers were A. F. Turner, H. C. Hoskins, Ken Samples, and F. Stevens.

Explorers to Hear Ghost Town Tales

ARA Explorers Club, whose members recently visited Tumco ghost town, will hear a description of the village as it was in its heyday at a meeting at 7:30 p.m. today (June 20) in ARA Clubhouse.

Mrs. Sarah Polhamus, who lived in Tumco as a girl, will speak.

Over the June 23-24 weekend, Explorers Club plans a group outing to a remote ghost town northeast of Joshua Tree National Monument.

Hawaii Group Tour Offered For Astro

Tentative plans for a late-summer group tour to Hawaii under sponsorship of ARA at GD/Astro are being formulated.

The tour would depart San Diego Aug. 18, returning Sept. 1. Cost per person would start at $300 for transportation and hotel reservation (15 days, 14 nights). For a total of $340, additional island tours would be included.

Contact Dixie Quesenberry, ext. 1111, for information.

Stamp Exhibit Set For Fair

Plans for an ARA Stamp Club exhibit at the San Diego County Fair are well under way, with several members contributing to the space flight theme of the display.

Don Thompson, club president, will show two pages of Austrian rocket stamps and a Polish first-day cover with the Cosmonaut Titov stamp. Two pages of Hungarian space flight stamps will be shown by Bill Bowen, while Jim Rowley has submitted Nationalist Chinese rocketry and space issues.

Czechoslovakia and Surinam satellite, and Astronaut Shepard souvenir sheets are contributed by H. E. LaNois, United States issues by Ave Hurlich, and Portuguese examples by Jim Randle.

A committee is now investigating possible maintenance of the stamp exhibit in Balboa Park's Museum of Man by the ARA club.

Coineers to Meet With Second Shift

ARA Coineers will meet at 7:30 p.m. today (June 20) in ARA Clubhouse, while their second shift counterparts, Swing Shift Coin Club, will gather there tomorrow (June 21) at 1:30 a.m.

Highlight of the first shift meeting will be a showing of the film "Freedom 7," and displays on the theme "My American Coins." Second shift will hold a business session and a display competition.

On June 24 the groups will combine for a picnic in ARA Area starting at 12:30 p.m. Picnic lunch will be served for donations of $1.50 (adults) and 75 cents (children), and a coin auction will be held.

Reservations for this event may be made by calling Joe Givens, ext. 1467.

Feminine Fitness Program to Begin

A summertime physical fitness program for GD/Astronautics wives and teen-age daughters begins next week under joint sponsorship of ARA and Astro Wives Auxiliary.

Scheduled for each Tuesday morning at 10, the first session gets under way June 26 at ARA Clubhouse. No advance registrations are necessary.

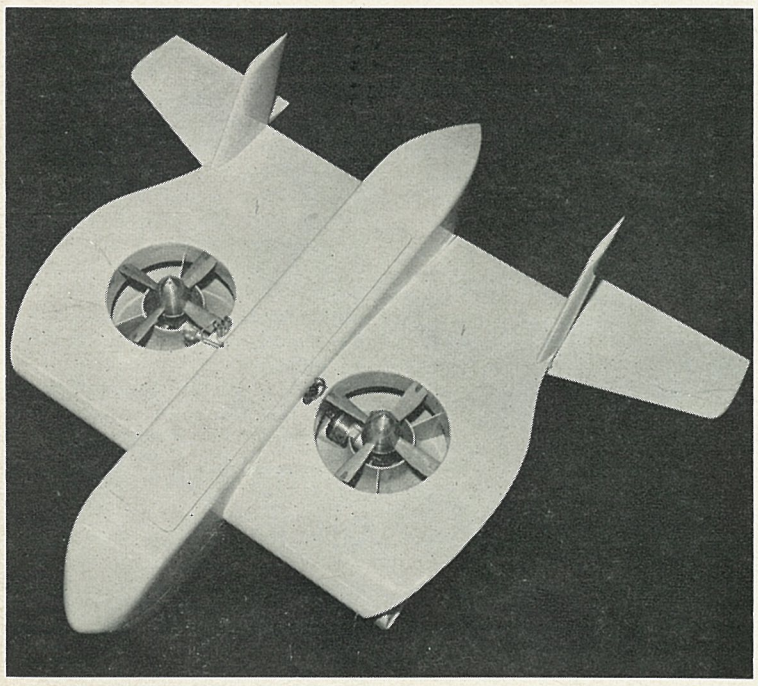
A professional instructress will conduct sessions slated to continue through the summer. Participants may enter any Tuesday morning.

Fee will be $2.50 per month per person. Available to those participating will be ARA's extensive physical culture equipment which includes units for weight control, body building, etc.

Maximum participation per session will be 20, first-come, first-served.

July 8 Sweeps Set For Cottonwood CC

A special golf sweepstakes has been scheduled by ARA at Cottonwood Country Club July 8. Only a limited number of starting times, beginning at 8:30 a.m., are available. Green fees are $5. Entries will be accepted at ARA Headquarters, ext. 1111, through June 27.



"BUBBLE" PLANE—Photo shows one of proposed designs under study at GD/Convair for advanced GETOL (Ground Effect Takeoff and Landing) plane.

Air Bubble Takeoff Plane Under Study by GD/Convair

Studies at General Dynamics/Convair on a new type of airplane that can take off and land on a runway of air were disclosed today.

Called GETOL (Ground Effect Takeoff and Landing), the project was described in a paper today (June 20) during the annual summer meeting of the Institute of Aerospace Sciences in Los Angeles. GD/Convair engineers, Walter D. Reeder, design specialist, and R. W. McDonald, senior aerodynamics engineer, outlined progress of the GD/Convair program since its inception four years ago.

The GETOL concept combines features of aircraft that take off straight up, eliminating prepared runways, with conventional takeoff aircraft that have greater range and payload capability.

Reeder and McDonald explained that ground effect is a principle whereby an object can be lifted off and supported above the surface on a high pressure bubble of air.

Such a plane would be able to take off and land without touching the surface. It would be able to operate equally well from a variety of surfaces — rough or smooth, such as a jungle clearing, sand, ice floe, plowed field or debris-laden water.

The division envisions a wide range of military and commercial applications for such an aircraft. The fact that it would not require prepared runways would increase its mobility and usefulness in many areas where conventional takeoff aircraft are now being used. GD/Convair is specifically investigating the limited war applications of GETOL aircraft.

GD/Convair has two testing programs of powered GETOL models under way.

Low-speed wind tunnel tests of a model are being sponsored at GD/Convair's San Diego facility by the company and the U.S. Army Transportation Research Command. This 400-lb. model is powered by two variable frequency 35-hp. electric motors. They drive two 10.4-inch diameter fans located in the wing.

Results of these model tests were described as "most encouraging" by Reeder.

"The model maintains a stable attitude at speeds over 40 knots," Reeder said. "In other words, when the model makes the transition from ground effect to normal flight, it maintains an even keel—the nose doesn't pitch up or down.

"Also, as forward speed is increased, the model does not show a tendency to lose lift," he added.

Reeder also termed the preliminary data obtained on the efficiency of the model's air ducting system as most encouraging.

"Our first series of model tests shows that power thrust losses as low as 10 per cent may be possible. If this performance can be duplicated with a complete full-scale air ducting system, GETOL payloads of twice the value possible with VTOL will be a reality," he said.

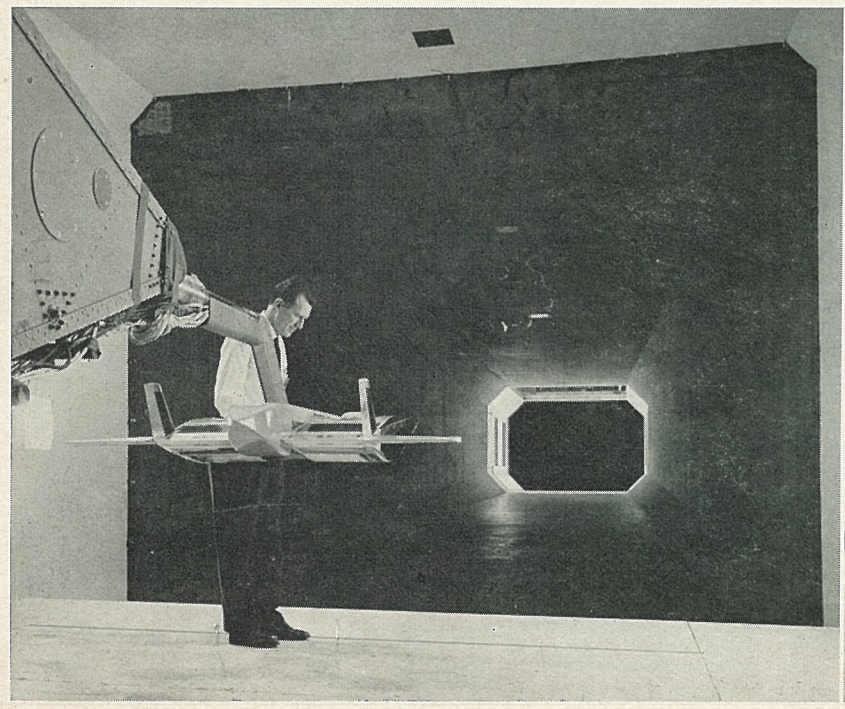
The paper also described dynamic model tests of GETOL configurations that have been conducted at the GD/Convair towing basin. These tests have been sponsored jointly by the company and the Bureau of Naval Weapons. The towing basin model is powered by two small gas engines that drive two four-bladed ducted propellers on top of the wing.

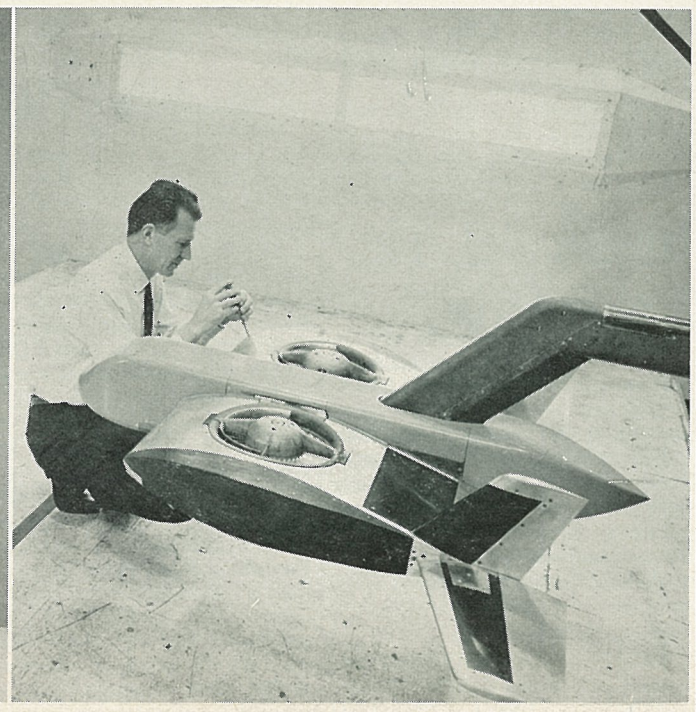
Under this program GD/Convair hydrodynamics engineers are studying various nozzle configurations to determine spray patterns when the model operates over water or sand. Other tests are being made to determine the model's behavior when operating over waves of various heights.

Reeder said that results obtained from both the wind tunnel and towing basin model tests are fed into an analog computer for interpretation so that operating environment can be simulated with a higher degree of accuracy.

Still a third series of GETOL model tests is being conducted in the company's airflow laboratory by thermodynamics engineers. Purpose of these tests is to study various air-moving methods and develop design of the complex ducting.

GD/Convair GETOL studies go back to 1958. It is believed that the San Diego firm was the first company in the United States to seriously study the application of the ground effect principle to aircraft development.





TUNNEL TESTING—Jack Quigley, GD/Convair test engineer, attaches 400-lb. model of GD/Convair-designed plane to fixture in low speed wind tunnel for checkout of stability. New concept provides for takeoff and landing without touching surface. Studies have been under way at GD/Convair since 1958 and combine advantages of vertical takeoff type with conventional craft.

More Production Hustlers Join SAC Forces at Bunker Hill AFB

Two more production Hustlers have joined SAC's Mach 2 retaliatory force at Bunker Hill AFB.

Hustlers Nos. 98 and 100 were flown to the Indiana base recently to increase 305th Bomb Wing's complement to 35 B-58s.

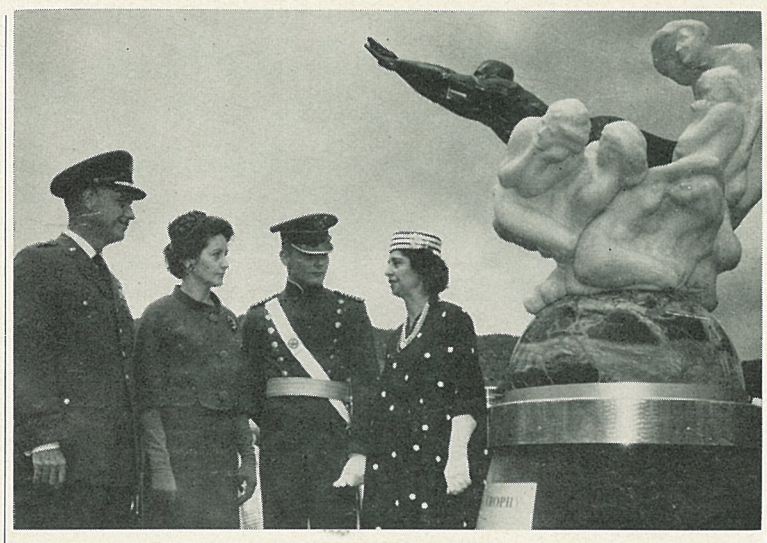
Hustler No. 98 was flown on a 3-hour, 40-minute delivery flight by a crew of Maj. D. J. Younger, pilot; Capt. R. L. Friedman, navigator; and Capt. P. A. Rowe Jr., defensive systems operator.

Making a 3-hour, 50-minute flight in No. 100 were Maj. I. D. Rothwell, pilot; Maj. J. H. Donavan, navigator; and Capt. R. M. Zefo, defensive systems operator.

Delivered on both planes were production two-component pods, which include a weapon-carry upper component and a fuel-carrying lower component which can be jettisoned when its fuel supply is used.

Hustlers Nos. 101 and 102 were in flight-line operations, while other B-58s up to 113 were in various other stages of preparation for company and Air Force acceptance flights.

INDIANA BOUND—Takeoff scenes like this were typical at GD/FW this month as two more production Hustlers joined 305th Bomb Wing at Bunker Hill AFB.



ENSHRINED — Participating in recent presentation of Bleriot Trophy to Air Force Academy were, from left: Maj. Gen. William S. Stone, academy superintendent, Mrs. Elmer E. Murphy, who made presentation, Cadet Col. David H. Roe, cadet wing commander, and Mrs. Eugene F. Moses, widow of record-breaking crew's navigator.

Speed Trophy Won by Hustler Presented to USAF Academy

The Louis Bleriot Speed Trophy of France, won last year by a SAC B-58 bomber crew from 43rd Bomb Wing, was presented to the United States Air Force Academy May 5.

Maj. Gen. William S. Stone, superintendent of the Academy received the trophy from Mrs. Elmer E. Murphy, widow of the pilot who made the record-breaking flight.

A Carswell AFB-based crew of Maj. Elmer E. Murphy, pilot; Maj. Eugene F. Moses, navigator, and Lt. David F. Dickerson, DSO, won the trophy for a flight made May 10, 1961. The crew flew their B-58 Hustler over a closed circuit, rectangular course about 666 miles long in 30 minutes, 43 seconds, averaging about 1,302 miles an hour. The flight began and terminated at Edwards AFB, Calif.

All three officers were later killed in an air crash at the Paris Air Show on June 4 of last year. The trophy then became part of Major Murphy's estate.

Louis Bleriot, French inventor, pioneer aviator and the first person to fly the English Channel, created the international competition for the trophy in 1930, six years before his death.

He stipulated that permanent award of the trophy required an aircraft to fly at least one-half hour at an average speed of 2,000 kilometers an hour (1,242.74 mph). Major Murphy's B-58 exceeded this requirement by 59 mph.

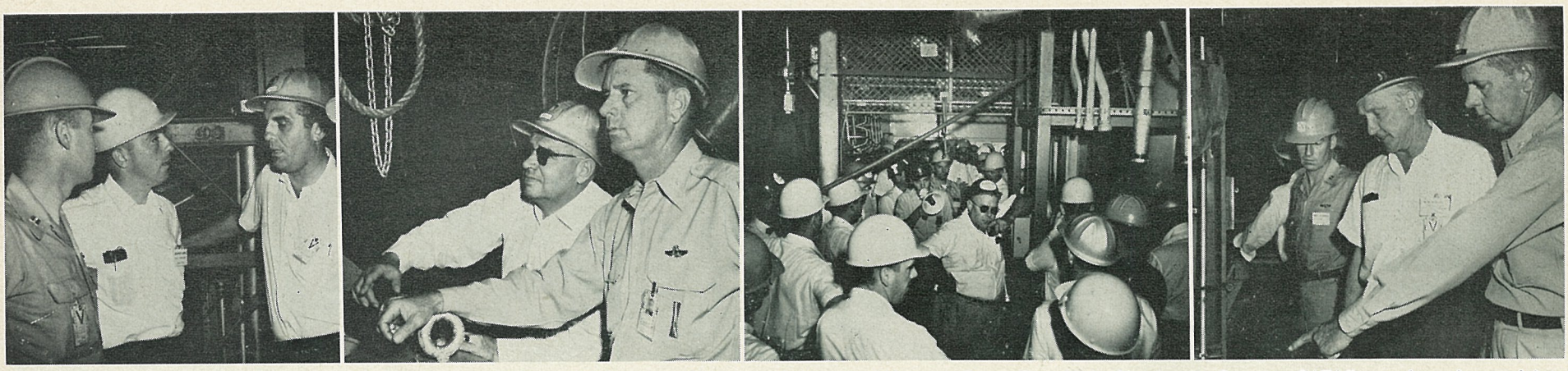
FIRST 880 AIRLINE PASSES MILESTONE

Delta Air Lines, first airline to inaugurate service with Convair 880s, marked its first year of service over the Southern Transcontinental Route last week (June 11).

It now flies 880s between Los Angeles, Dallas, and Orlando, Fla.

The Caribbean was linked with the West Coast via the Southern Transcontinental Route in December when Delta began first direct jet flights from California to Montego Bay, Jamaica, and Caracas, Venezuela. In May of this year Delta added one-stop jet service from Los Angeles to San Juan, Puerto Rico.

Delta now operates 12 Convair 880s and will accept delivery on four this summer.



BELOW GROUND—Vendors toured Atlas sites at Walker AFB last month to see problems up close. Reading from left: Capt. C. P. Duryea, BSD; George A. Clark, Snap-Tite vice president; Don Williams, division manager, Purolator Products; J. K. Morris, Western Gear Co.; Maj. Charles R. Garrett, SATAF; vendors descend into silo via elevator; Capt. Duryea; W. M. Morgan, division manager, Beech Aircraft; Major Garrett.

GD

ASTRONAUTICS EDITION

GENERAL DYNAMICS NEWS

Vol. 15, No. 14 PUBLISHED BY GENERAL DYNAMICS CORPORATION Thursday, July 5, 1962

GREETINGS—Nancy Williams, GD/Astro receptionist, greets Astronauts M. Scott Carpenter and John H. Glenn on arrival last week. At right is Ben Gillespie of NASA.

Astronauts Glenn and Carpenter Return as 'Satisfied Customers'

"You see before you General Dynamics/Astronautics' two most satisfied customers!"

Astronaut John Glenn made the quip last week (June 28) when he and Astronaut Scott Carpenter returned to Astronautics for their first visit since both orbited the earth aboard Atlas-powered space craft.

Before the long day was over there was a question of who enjoyed the visit more—the astronauts or the people who built the Atlas.

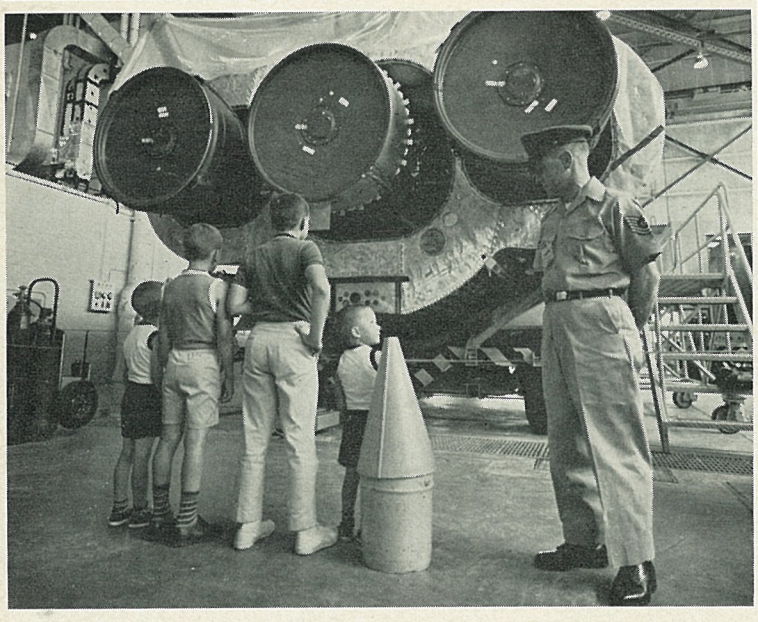
In quick succession, they arrived, tossed coins in Astro's reflection pool, conferred, toured the Astro plant, pausing constantly to chat with employees and sign autographs. That evening they spoke before the largest (2,400) Astro Management Club gathering ever and topped off the evening with a televised news conference.

Astro President J. R. Dempsey set the club meeting pace when he said: "I've never introduced anyone who had less need for an introduction."

Guests at the club meeting included Mr. and Mrs. Walter Schirra Sr., parents of Cdr. Walter Schirra who is scheduled to make the next Atlas-powered Mercury space flight.

Carpenter reported that he will be at Cape Canaveral to advise Schirra when the latter makes his flight, while Glenn is as yet unassigned. The other astronauts will be at tracking stations, he said.

Both Carpenter and Scott were made honorary members of the Management Club.



OH YEAH?—While engines of Atlas missile hold attention of his companions, one young man chooses to fix Air Force sentry with awed gaze. Youngsters were among thousands who viewed missiles, base facilities, during recent Armed Forces Day open house at Altus AFB.

New SD-Vandenberg Air Route Created

General Dynamics travelers may now use a newly-established commercial air route between San Diego and Vandenberg AFB on company business trips.

This week Pacific Airlines (PAL) began daily round-trip operations, Monday through Friday, between the two coastal points.

Northbound flights leave San Diego at 7:15 a.m. arriving Vandenberg at 8:50 a.m. Southbound departure is at 5 p.m., arriving at Lindbergh Field at 6:35 p.m.

Reservations for business travel are made with Astro's travel center, ext. 4355.

Base Completion Speeded, Vendors Tour Complexes

A special vendor tour in New Mexico and a bundle of cash in California focused special attention this month on the accelerated program to complete Atlas operational bases within or ahead of schedule.

The cash (one dollar bills stacked three feet wide, two feet high and two feet across) was introduced unexpectedly during a monthly management conference at General Dynamics/Astronautics. Mortimer Rosenbaum, executive vice president, hoisted the sacked currency and said:

"I want you all to get a good look at this. It's something we all understand—cold, hard cash!"

He went on to explain the relationship of the cash to current base activation efforts. He showed how it was a vital part of the importance of ahead-of-schedule completion of Atlas bases for various reasons—savings to the taxpayer, reputation in seeking future contracts, job futures, defense capabilities, etc.

(At GD/Astronautics, President J. R. Dempsey has assigned a Priority 1 rating to the task of completing the remaining Atlas bases ahead of schedule.)

Rosenbaum again touched on the important role each employee, whether assigned to bases or the home plant, plays in seeing that needed parts, paper work and assist efforts are handled efficiently and quickly.

Others associated with the program are also accelerating their efforts. On June 12-13 a group of over 50 top officials from major vendors and suppliers engaged in Atlas work visited Walker AFB, New Mexico.

Conducting briefings for the group were such officials as Col. R. I. Barrowclough, SATAF commander at Walker; Col. E. L. Ramme, SATAF commander at Altus AFB; Col. M. K. Andresen of Norton AFB; P. M. Prophett, Astro's director of base activation; F. J. Traversi, Astro director of material; and M. R. Ubben, Astro operations manager at Walker AFB.

Each stressed the importance of the timely action within the next few weeks in order to finish the program on time.

"Our intentions are not to point a finger at anyone, but to let you see how urgently we need the parts you supply," Prophett said. "We will leave it to you to draw your own conclusions as to the need for added effort at this time."

Following briefings, visitors toured Site 4, an Atlas launch complex. Throughout the complex were small signs denoting parts by number and supplier. Men familiar with the operation explained just what impact a missing part had on the orderly completion of the site. Thus, at hand were graphic illustrations of what had to be done before all sites here and at other bases could be finished and declared operational.

Throughout Astronautics efforts are continuing to acquaint employees with the importance of the program. Posters and photographic displays pinpoint areas in which special effort is required. Group meetings on all levels are ironing out flaws and making improvement suggestions.

MANY PAGES—Some idea of documents involved in completing contract is indicated here in those covering "Golden Ram Follow On" with key men involved. They are, from left, Lt. Col. D. B. Emery (AFPR), J. M. Rogers (Astro's assistant Atlas program director), Maj. M. A. Bigelow (BSD), Lt. Col. G. Wolde (BSD) and W. F. Chana (Astro manager of support field operations).

Log Book Entries

Promotions

MAIN PLANT

Promotions to or within supervision effective June 18.

Dept. 101, Data Processing: To data processing general supervisor, A. N. Hubbs. To group engineer, J. P. Greene. To data processing supervisor, K. J. Christiansen, A. Goodearl, H. C. Heath, R. T. Johnson, T. R. Shelor. To asst. research group engineer, W. D. McClennan. To data processing asst. supervisor, R. R. Eyres. To clerical asst. supervisor, C. P. Malloy, V. D. Smith, E. C. Tinkham.

Dept. 103, Legal: To patent counsel, C. R. Brown.

Dept. 145-7, Reliability Control Engineering: To asst. reliability group engineer, H. F. Stout.

Dept. 170-4, Office Services: To clerical asst. supervisor, E. M. Overton.

Dept. 223-2, Production Control: To production control asst. foreman, S. J. Webster.

Dept. 322-3, Support Publications: To support publications asst. supervisor, K. S. Veach.

Dept. 330-2, Support Logistics: To support planning and estimating asst. supervisor, H. W. Bartz.

Dept. 335-3, Service Parts: To support logistics asst. supervisor, C. R. Elliott.

Dept. 343-5, Support Manufacturing Control: To support tooling asst. supervisor, C. W. Banks.

Dept. 510-5, Engineering: To group engineer, J. D. Rhamy.

Dept. 524, Engineering Management Systems: To chief of engineering management systems, J. T. Helstowski. To engineering practice standards supervisor, D. H. McCoy.

Dept. 547, Test Equipment Design: To electrical group engineer, T. J. Mawson, R. T. Moran.

Dept. 592-6, Applied Research Laboratories: To research group engineer, F. M. Milligan.

Dept. 974-2, Centaur Test Operations: To asst. flight test group engineer, W. D. Warne.

LINCOLN AFB

Dept. 616-9, GD/Astronautics Operations: To launch complex supervisor, E. S. Day. To launch complex asst. supervisor, C. T. Jahnke.

Service Emblems

MAIN PLANT

Service emblems due during the period July 1 through July 15.

Twenty-five-year: Dept. 155-0, A. D. Stone.

Twenty-year: Dept. 196-0, Q. F. Harvey; Dept. 331-2, E. E. Lamb; Dept. 351-2, L. G. Atkinson; Dept. 759-0, S. A. McDonald.

Fifteen-year: Dept. 170-1, E. J. Boggus Jr.; Dept. 344-3, D. L. Schmitz; Dept. 403-3, Joe Moore; Dept. 512-1, W. D. Daniel Jr.; Dept. 581-1, R. C. Ferguson; Dept. 602-0, J. E. Henderson; Dept. 759-0, R. M. Bolton; Dept. 782-0, F. J. Gallagher.

Ten-year: Dept. 120-0, C. T. Newton; Dept. 131, Helen P. Johnson, G. E. Ray; Dept. 141-2, Lester Mappus; Dept. 143-2, M. C. Rotter; Dept. 222-2, Harriette F. Alford, Irene M. Atchley; Dept. 224-0, R. J. Blair; Dept. 250-1, S. C. White.

Dept. 343-3, Adelia L. Morris; Dept. 344-2, J. A. Pena; Dept. 451-0, R. M. Petersen; Dept. 523-1, D. F. Daniels; Dept. 524-2, F. L. Castle; Dept. 549-0, S. H. Logue; Dept. 580-6, S. A. Campbell; Dept. 756-0, A. A. Toth; Dept. 758-0, Simon Robles Jr., J. B. York; Dept. 771-0, Nathaniel Jones Jr.; Dept. 783-0, J. P. Villarreal; Dept. 975-3, A. F. Cox.

AFMTC

Ten-year: Dept. 571-3, J. J. Lennon.

ALTUS AFB

Twenty-year: Dept. 617-8, E. D. Burnett.

Ten-year: Dept. 617, O. B. Martin, W. J. Waller.

DYESS AFB

Ten-year: Dept. 618-8, J. C. Hazen, L. E. Wallace.

LINCOLN AFB

Ten-year: Dept. 616-7, P. L. Anderson.

SCHILLING AFB

Fifteen-year: Dept. 615-2, H. A. Lockwood.

SYCAMORE

Ten-year: Dept. 573-6, E. L. Staats Jr.

WALKER AFB

Twenty-year: Dept. 619-9, D. V. Lawson.

Fifteen-year: Dept. 619-9, M. W. Scott Jr.

Ten-year: Dept. 619-3, B. S. McGarrah.

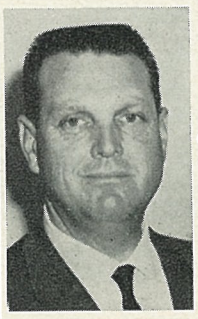
Births

MAIN PLANT

BOUNDY—Son, David Gerald, 8 lbs., 14 oz., born June 16 to Mr. and Mrs. Gerald Boundy, Dept. 322-5.

DYESS AFB

ROGERS—Daughter, Sherri Marie, 7 lbs., 1½ oz., born May 19 to Mr. and Mrs. A. G. Rogers, Dept. 539-6.



John F. Speed, GD/Astro Dept. 250-5, recently received his 25-year emblem.

Personals

MAIN PLANT

My sincere thanks and appreciation to friends at both Convair and Astro divisions for the many kindnesses shown my husband, Leroy E. Fligel, during his long illness, and for the beautiful flowers and tokens of friendship sent at his passing.

Gladys Fligel, Convair Dept. 400.

* * *

Our sincere thanks to Management Club and our other Astronautics friends for the floral offerings and expressions of sympathy following the passing of our loved one.

F. M. "Hack" Wilson, Dept. 756, and family.

* * *

The family of Spiro D. Koulaxizes (Astro Dept. 140-1) wish to express their gratitude to their many friends at Astronautics for the assistance and kindnesses during their recent loss.

George D. Koulaxizes, Astro Dept. 959-1.

Deaths

MAIN PLANT

KOULAXIZES—Spiro D., Dept. 140-1. Died June 14. Survived by daughter, Frances, 12.

McCRAY—James R., Dept. 141-4. Died June 17. Survived by wife, Phyllis, and son, Michael, 2.

MILLIGAN—Charles W., Dept. 782. Died June 12. Survived by wife, Mary Louise.

DYESS AFB

VITTITOW—Harrel C., Dept. 618-8. Died June 18. Survived by wife, Billia Jean.

VANDENBERG AFB

COOK—Raymond F., Dept. 576-3. Died June 20. Survived by wife, Vera.

LOWE—Robert M., Dept. 576-6. Died June 16. Survived by daughter, Barbara.

GD/Astro Club Achievers Win

"Space Light," a Junior Achievement company sponsored by GD/Astronautics Management Club, has been named "best company of the year" in San Diego County, and placed second among 22 county groups at the recent Junior Achievement Trade Fair.

Junior Achievement companies are operated annually by groups of youngsters who, with adult advice, set up a business, sell stock, produce and market a product, as a practical study in free enterprise.

GD/Astro Management Club this year sponsored two such groups: Space Light and Wheels of Progress.

Getting off to a slow start, Space Light originally planned to market missile-shaped lighters, foundered, and turned successfully to the production of decorative pillows.

Wheels of Progress, named county company of the month for February, turned out ceramic table lighters.

Don Dayharsh represented Management Club Advisory Board for Junior Achievement with Fred Fox, Bill Lyle, R. C. Christopher and Bill Potts advising Space Light, and Don Crayton, Frank McQueary and Don Slingsby advising Wheels of Progress.

Dick Mitchell Gets NIRA Post As Jr. Director

J. R. "Dick" Mitchell, chief of employee services at GD/Astro, was twice honored during the 21st annual National Industrial Recreation Association conference held this month in New York.

Mitchell was one of 55 men and women in the United States and Canada to be named a Certified Industrial Recreation Administrator, a new designation just approved for recreational leaders.

He was also named junior director of N.I.R.A. Region VII (west), a post that will lead next year to the highest administrative post within Region VII, senior director. (A junior director automatically becomes a senior director after one year.)

General Dynamics Corporation was represented at the conference by representatives from Astro, Convair, Pomona, Fort Worth, Electronics and Telecommunication Divisions.

Atlas Coordinator Cited For Courtesy Toward AF Crews

Surprise honors awaited GD/Astro's C. "Connie" Beard II, missile shipment coordinator (Dept. 833-2), as he went about what has become a routine task to him at Miramar NAS recently—loading an Atlas ICBM aboard an Air Force transport plane.

Under direction of Col. Thomas L. Wiper, Travis AFB commander, a passenger aboard the Atlas-carrying C-133B, Beard was led to the cockpit and seated at the plane's controls.

In a ceremony in which he cited Beard for "courtesy and cooperation in dealing with Travis AFB-based transport crews during the past two and one-half years" Wiper presented him with a chrome badge making the Astro man an Honorary Aircraft Commander.

Beard has supervised loading operations for more than 200 Atlas ICBMs.

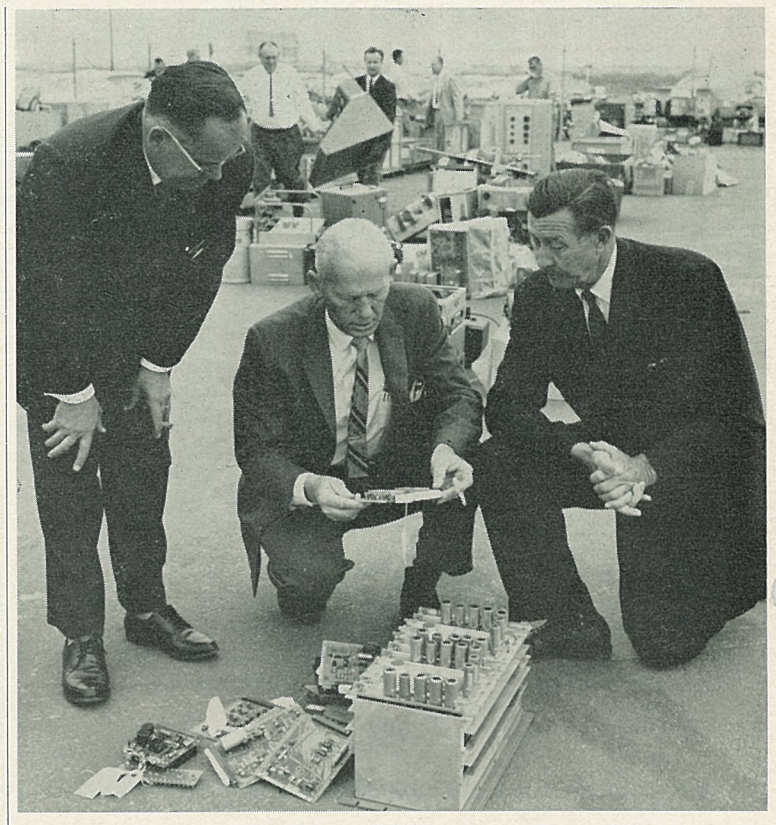
Plant Appearance Winners Repeat In Monthly Contest

Two repeat winners in GD/Astro plant appearance program accepted awards recently for the May contest.

Accepting the plaque for warehouse and crib storage areas on behalf of Dept. 833-1 and -2 for the third consecutive month was F. J. Parker, chief of stores and traffic.

G. A. Grossaint, chief tool engineer, accepted the May office area award for Dept. 401-1 through -5 which also led this area category during April.

Laboratory area award went to Dept. 143-2 with R. H. Gilliland accepting the plaque, while N. L. Jones accepted the production area award for Dept. 452.



BONANZA—Roy Eastberg, GD/Astro surplus sales representative, discusses potential educational use of surplus electronic equipment with Burch Brown, General Services Administration utilization officer, and F. A. Langston, Department of Education representative.

Surplus Electronic Equipment Sold for 'Song' to State Schools

Surplus electronic equipment valued at a half-million dollars was the "treasure" sought at General Dynamics/Astronautics by 19 representatives of seven Southern California schools last month.

For the fifth time in two years, GD/Astro opened its reclamation yard at the Kearny Mesa plant to educators seeking surplus materials for laboratory and classroom use.

After the General Services Administration had determined that no government agency had need of the electronic materials, the Air Force authorized its disposition for educational purposes.

GD/Astro presented the material to the California Department of Education which designated schools to take part in the "treasure hunt," and (to establish accountability) sold materials to educational institutions for one cent per pound.

Selecting materials — 25,595 pounds of it — for use by their schools were representatives of Sweetwater Junior College District; San Diego City College; San Diego Junior College; University of California, Los Angeles; University of California, Riverside; Long Beach City College; and University of San Diego.

Husband and Wife Win as Skeet Team

SCHILLING AFB — B. C. McGowan, assigned to Complex 3 here, broke 100 consecutive targets to win the Kansas Western Zone skeet shoot over a field of 61 shooters. The event was held May 27 at Wichita, Kan.

McGowan and his wife, Phyllis, won a team event scoring 199 of 200 hits.

In individual competition, Phyllis was runner-up for the championship, breaking a six-way tie with five male shooters after qualifying by breaking 99 of 100 targets.

New Toastmistress Club Is Organized

GD/Astro employees and dependents are represented among members of the newly-organized Serra Mesa Toastmistresses Club which meets the first and third Monday of each month at 7:30 p.m. in ARA Clubhouse.

The group will receive its charter and install officers later in the summer.

Recently elected to club posts are Dixie Quesenberry, president; Sherry Miller, vice president; Phyllis Silva, secretary; Helen Hussman, treasurer; and Louise Heitkam, club representative.

Fran Leland Named To Regional Office

Fran Leland, industrial specialist in GD/Astro's AFPR office, was last month elected assistant regional supervisor, Southwest Region, International Toastmistress Clubs.

The region covers clubs in the western U. S. and several Pacific areas.

She is past chairman of Council 7, San Diego County Toastmistress Clubs, and an executive board member of the county chapter, Muscular Dystrophy Association of America.

FAST WORK—Photographer Bill Touchberry snapped this shot of crew from Walker AFB complex No. 2 celebrating at informal party that followed ahead-of-schedule launch platform drive-down.

General Dynamics NEWS

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GD/Electronics (San Diego) news contact: Betty Freeby, CY-8-4641, ext. 1377, Plant 1, Bldg. 51.

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Pomona Editorial Offices, Room 106-D, Bldg. 1, GD/Pomona, Mail Zone 3-3, P.O. Box 1011, Pomona, Calif. Telephone NAtional 9-5111, ext. 6226-5279. Staff: James Combs Jr., editor; Carol Sowers. Daingerfield news office, P.O. Box 947, Daingerfield, Texas. Telephone Lone Star, Texas, 2211, ext. 424.

* * *

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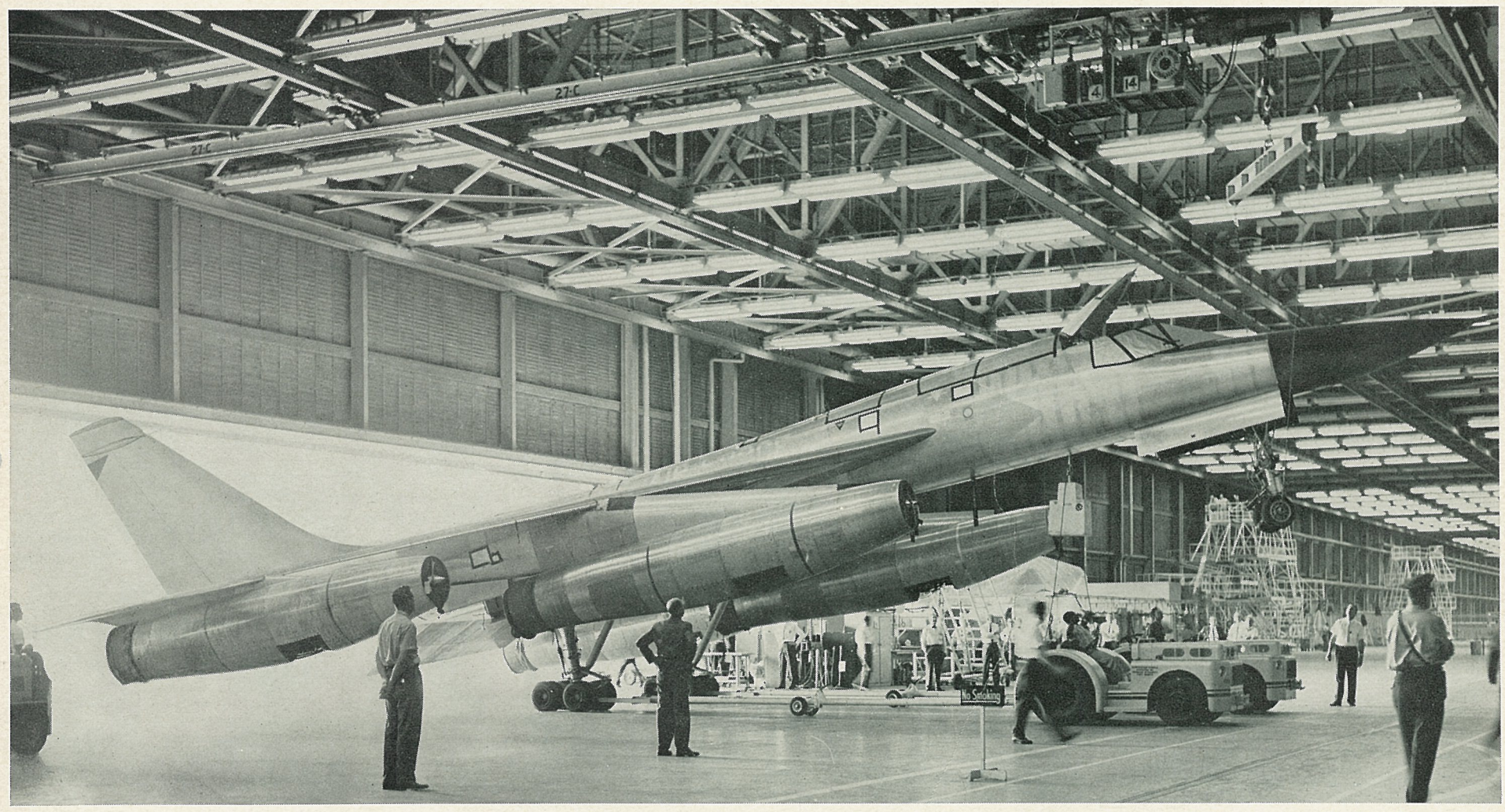
Total circulation of all General Dynamics NEWS editions, nearly 90,000.



SQUEEZE PLAY—Hustler No. 4, en route to trainer-bomber modification area in plant, became first B-58 to be towed through east door of GD/Fort Worth plant. Because Hustler's tail towered above door top, B-58 nose was tilted up 11 degrees, enabling tail section to "slide" under.

British Recognize GD/Astro's Bossart

Karel J. Bossart, GD/Astro technical director, was honored recently by the British Interplanetary Society as the first recipient of its bronze Astronautics Medal.

Dr. W. R. Maxwell, society president, presented the award to Bossart during a recent visit to GD/Astro Kearny Mesa plant.

Dr. Maxwell noted Bossart was known as "father of the Atlas," and cited him for his "individual contribution to the science of astronautics, particularly in the engineering sciences."

Frank Fink to Talk At SAE Gathering

Frank Fink, formerly chief engineer at GD/Convair and now vice president of engineering, Ryan Aeronautical, will speak to members of Texas Section, Society of Automotive Engineers, Sept. 21.

The meeting will start at 6 p.m. at Inn of Six Flags.

Frank W. Davis, GD/Fort Worth president, will present the speaker. Lloyd Halpenny of Dept. 89-0, newly-elected vice chairman of the society, will preside.

Trainer-Bomber Change Starts on First of Four

Hustler No. 4, first of four test B-58s slated for conversion to trainer-bomber status, was moved into the main plant this month and readied for modification.

Work on No. 4 is to begin July 2. Starting work dates on the remaining three planes: No. 3, Sept. 1; No. 9, Oct. 1; and No. 2, Nov. 1.

Modification work will be done in the former F-106 area, from Columns 93 to 109 between aisles A and B.

Development departments will purge, test and remove instrumentation on each Hustler as it is cycled into the program. Modernization will update the planes, supported by various factory departments.

Nose of No. 4 was tilted about 11 degrees in order that the Hustler's tail, which stands about 30 feet off the ground, could be lowered enough to clear the 21-foot, 7-inch tall east door of the plant.

The door—known as the 123-foot east door—is adjacent to the modification area.

No. 4 is undergoing engineering configuration review and inspection prior to start of actual work.

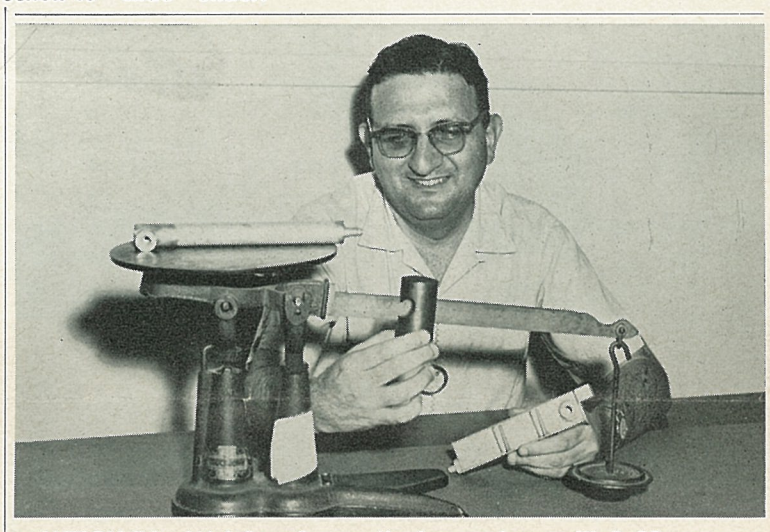
Towing No. 4 to its work site through the larger north door would have been impractical, a spokesman said, since considerable equipment would have had to be moved.

Gil Clark Gets Transfer Post

Gilbert D. Clark, veteran sales executive, last month was named project manager—transfer tasks for General Dynamics/Convair, reporting to F. S. Chambers, manager of contracts.

Clark succeeds Lyle Wood in the post which involves coordinating and expanding GD/Convair efforts in performing tasks for other Dynamics divisions. Wood transferred to GD/Electronics at San Diego last month as manager of material.

Clark, who soon will receive a 25-year pin, was an engineering pilot at Vultee Field in the early days. For the bulk of time, however, he has been a regional sales manager, specializing in South American customers for GD/Convair transports.



WEIGH-IN—Weight of new "value-engineered" B-58 part vs. original is compared by J. M. Frost, one of several GD/FW weight engineers who are constantly on lookout for superfluous poundage.

B-58's Weight Closely Watched To Be Sure It's in Right Spots

The B-58 Hustler constantly watches her weight—not only to keep it down, but to keep it in the right places.

She gets a highly competent assist from 25 GD/Fort Worth weights engineers, who helped conceive the Hustler's weight at "birth" and who have kept close tabs ever since.

"Weight must be kept in the right location so that the plane can keep the right center of gravity (CG) at all times," points out J. M. Frost, a project design engineer in the weight control group.

The CG keeps the plane "balanced" in flight.

"As an example, replacement of SAC seats with heavier B-58 escape capsules shifted the weight of the Hustler slightly forward," Frost explained. A different usage of fuel was suggested to counter-balance the weight-shift.

While GD/Fort Worth weight engineers meticulously count the metallic ounces added to or subtracted from a Hustler, they are constantly on the lookout for new ways of cutting weight, too.

The two avenues most commonly explored: lighter metals and smaller components.

"Aluminum honeycomb—and in some instances titanium—used on the B-58 is considerably lighter than materials and construction used before supersonic planes came on the scene," Frost said.

"But since honeycomb aluminum has heat limitations somewhere in the Mach 2-3 regime, the industry is now looking for metals equally as tough but more resistant to heat."

Titanium solves some of the problems. It's lighter than steel, but still heavier than aluminum.

"Magnesium is being used extensively and a metal being explored industry-wide is beryllium," Frost said. "It's about four times as light as steel and may be able to stand up to hypersonic speeds. At this point, however, it's expensive and quite hard to form."

Replacement of vacuum tubes with transistors has reduced the size, thus weight of electronic packages appreciably.

"Now comes micro-miniaturization," Frost said, "which reduces the weight of transistorized packages to about one-tenth of present weight.

"In most cases the micro-units are more rugged and able to take more vibration, and in many cases greater temperature."

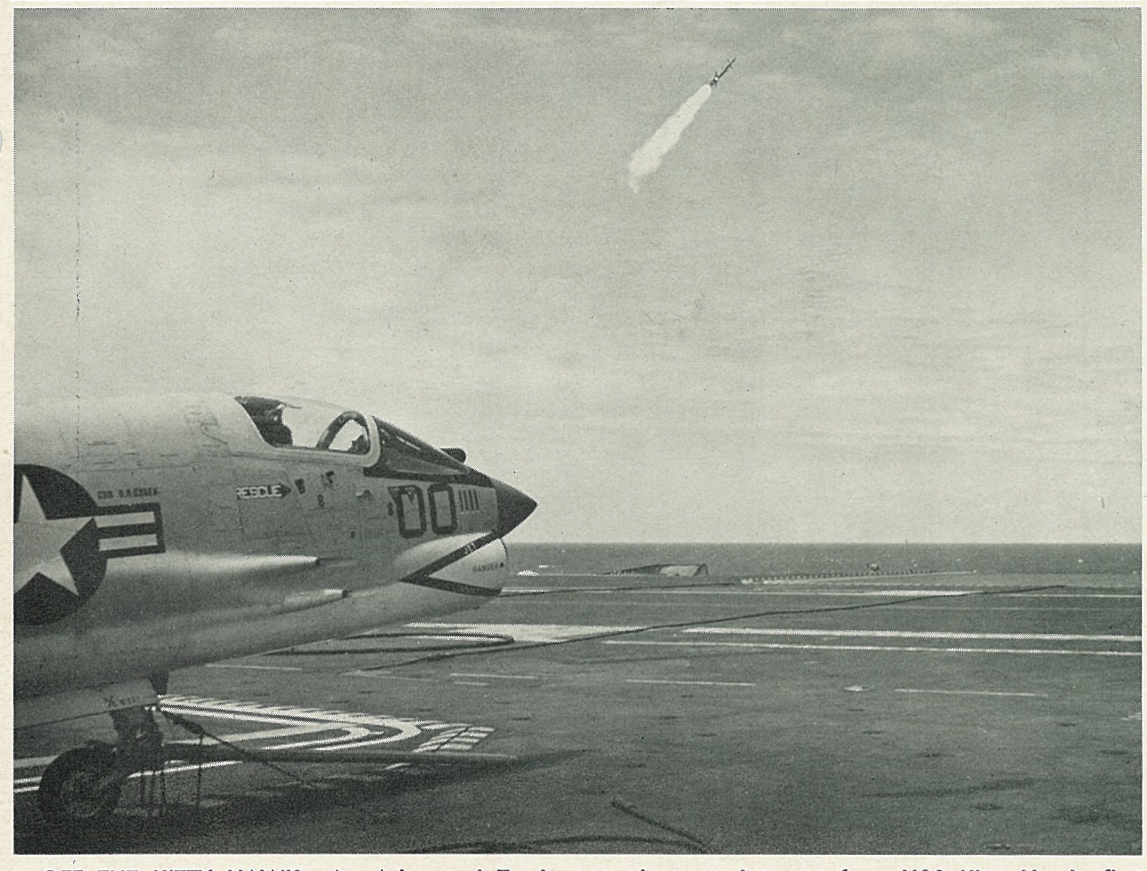
As an example, Frost pointed out, micro-miniaturization would reduce the size of the Hustler's short-range communication system from 45 to 21 pounds—more than half.

"And this is a conservative example," he said. "In one instance, we theoretically reduced the weight of a unit from 70 to 15 pounds."

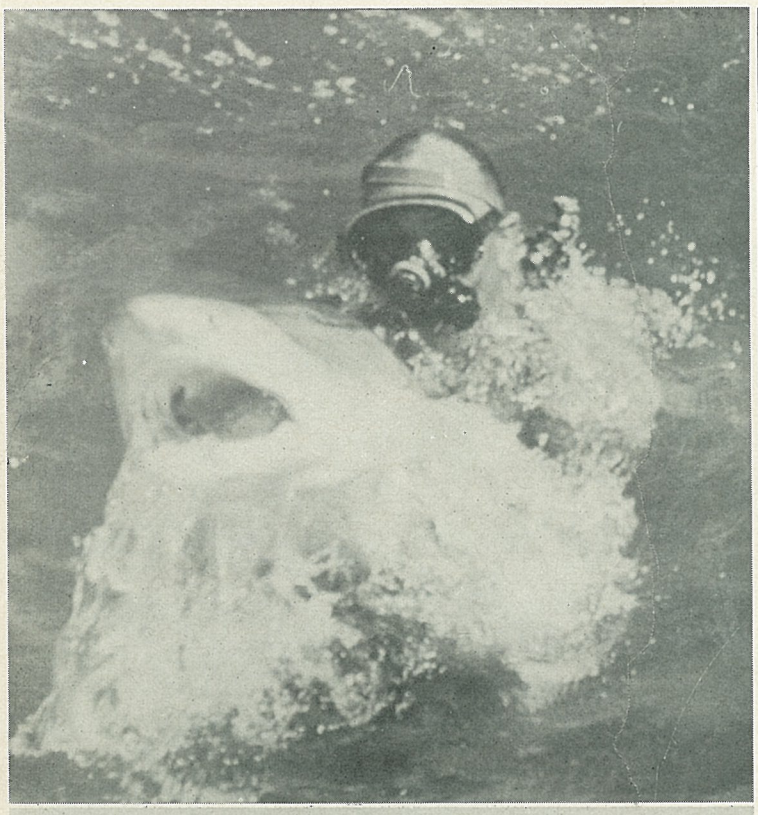
Thus far, value control seminar projects have already accounted for a B-58 weight reduction of 16½ pounds and a cost savings of $105,000.

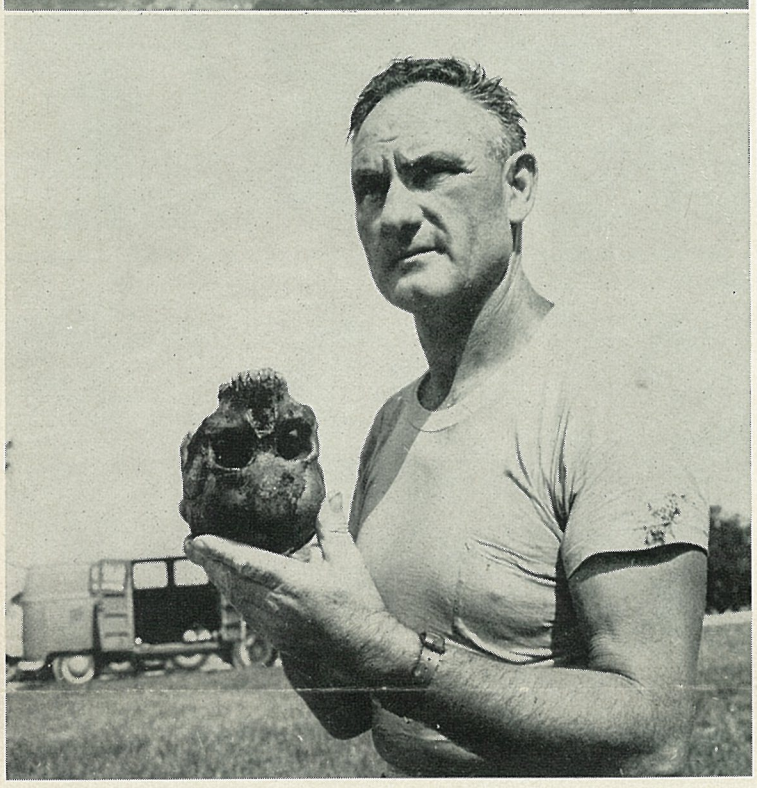
CARL BROWN HEADS LEGAL ASSOCIATION

Carl Brown, General Dynamics/Astronautics patent counsel, has been elected president of the San Diego Patent Law Association for the 1962-63 term.



OFF THE KITTY HAWK—An Advanced Terrier speeds toward target from USS Kitty Hawk, first "missile packing" carrier assigned to Pacific Fleet. Navy reported firings were "completely successful" recently on Pacific Missile Range.—U.S. Navy photo.





DIVER—William R. Royal of GD/Astro, presently assigned to Dyess AFB in Texas, has spent a good deal of time (8,000 hours) in the air, and a good deal of time, too, beneath waves. In top photo he surfaces aboard a shark!

Deep Sea Broncs

Shark-Riding Ex-Pilot Says: Trick's in Getting On and Off

DYESS AFB — The plains of Texas are probably the last place to look for a skindiver, but William R. Royal, GD/Astro plant engineering construction estimator here, has enough deep water memories for a lifetime.

Now assigned to site operations (Dept. 618-3), Royal has dipped an aqualung in two oceans, countless lakes and the Gulf of Mexico. He's a former Air Force lieutenant colonel, a pilot with 8,000 hours of flying time, and enthusiastic amateur archaeologist who rides sharks for "kicks."

He is a grandfather (11 grandchildren), in his mid-fifties. One of his nine children, Walter, is in GD/Astro Dept. 250-2 at the main plant.

Royal first took to the water in 1953 during a military assignment on Johnston Island. He has free-dived to 90 feet and can stay under holding his breath for three minutes. With an aqualung he has descended to 260 feet.

Shark riding came naturally to a man who has landed about 35 of the big fish. He slips a noose over the shark's tail, climbs aboard and directs his "mount" by manipulating its pectoral fin.

His archaeological interest was spurred by fossilized bones and teeth of mammoths and other prehistoric animals he recovered from under water in the Gulf of Mexico. Perhaps his most notable "find" is that described in the October 1960 issue of American Antiquity.

At Warm Mineral Springs, Fla., is a cave some 40 feet under water, where Royal discovered human skeletal remains including a skull containing soft, preserved fragments of a brain. Radiocarbon techniques dated a charred log found nearby at about 8,000 B.C.!

Isn't there some risk in these exploits? Shark-rider Royal views them calmly.

"Just two problems with the sharks," he shrugs. "Getting on —and getting off."

GD/Astro Men Earn Master's Degrees

Among those receiving advanced degrees from San Diego State College last month were two General Dynamics/Astronautics men, Eugene Rosen of Dept. 170 and Patrick W. Gowan of Dept. 526-6. Both received master's degrees in business administration.

GD/Convair Displays Training Techbooks

GD/Convair Programmed Instruction Techbooks were displayed recently at an exhibit held in connection with the national convention of the American Society for Training directors at Dallas, Texas.

Howard Kennedy, manager of technical publications, and J. D. Meacham, service publications editor, conducted the display.

Dynamics Men Represented at NAS Symposium

General Dynamics men were prominent among the 200 delegates from industry, government, and military organizations throughout the country who attended the 7th Military-Industry Missile and Space Reliability Symposium at North Island NAS June 18-21.

Gen. B. A. Schriever, USAF commander, Air Force Systems Command, keynoted the conference with a talk on "Management —Key to Accomplishment." Other top officials from government, military, and industrial agencies spoke and conducted panels on phases of reliability in management, contracts, design, cost of unreliability in the missile and space systems field.

A. C. McMaster, GD/Pomona manager of quality control, was a member of the "Missile Reliability" panel on the opening day, while L. M. St. Martin of GD/Pomona reliability design support was scheduled to speak on "Results of a Test-to-Failure Program on Electronic Parts."

GD/Convair personnel attending included B. J. Simons, chief engineer; F. A. Stephenson, assistant chief engineer; W. W. Johnston, reliability engineer; R. A. Karva Jr., senior reliability engineer; R. V. Shields, chief of reliability; H. P. Williams, value control manager; G. R. Bailey, quality control lab supervisor; L. G. Lawson, inspection assistant supervisor; O. G. Scarborough Jr., quality control senior engineer; T. W. Brotherton and L. C. Stuckey Jr., inspection general supervisors; G. A. Covington, manager of quality control; and W. J. Martin, director of quality control and production flight.

Other General Dynamics representatives from Pomona, Electronics, Astronautics divisions also attended.

The annual symposium was sponsored by Office of Director of Defense in cooperation with the Army, Navy, AF, NASA and hosted by Bureau of Naval Weapons.

GD/FW RESERVISTS PREPARE FOR DUTY

Four GD/Fort Worth employees are members of the 622nd U. S. Air Force Hospital Reserve which will be airlifted to Maxwell AFB, Montgomery, Ala., Aug. 4-19 for a two-week tour of duty.

They are Capt. Walter R. Hill, Dept. 3-4, squadron commander; Capt. Ted Hayes, Dept. 11-3, training officer; T/Sgt. Harold R. Williamson, Dept. 11-2, NCOIC personnel section; and S/Sgt. Jack Thomas, Dept. 4, NCOIC admission and disposition section.

Located at Carswell AFB, the 500-bed Air Force Reserve Hospital was recently named by Continental Air Command Headquarters as an outstanding non-flying unit. The unit has 30 officers and 265 airmen.

Librarians Elect Canter and Blair

Louis Canter, library and information services manager, and K. G. Blair, technical information specialist, at GD/Astronautics, were elected recently to top San Diego chapter offices of the Special Libraries Association.

Canter and Blair were named president and vice president respectively of the group which includes professional librarians from industrial, government and university libraries.

ACHIEVEMENT — Celebrating distribution of 1,000th pair of shoes to needy children by polishing and refurbishing some more are participants in Walker AFB Astro Wives Club's "Operation Shoe." They are Mmes. Katan, Taylor, Smith, Blanchard, Clem, Niemann, Fetter, Livesay and Davies.

'Operation Shoe' to Aid Needy Kids Expanded to Include Clothing

WALKER AFB — What started last November as a two-month project of the welfare committee of Astro Wives Club here, is still "going strong" and recently passed a milestone.

Dubbed "Operation Shoe," the project began when committee members were advised that a number of Roswell, N. M., children were unable to attend school because they lacked shoes.

In November, the group began collection. Used shoes were polished and refurbished and then sent to schools for distribution.

Then when some needy children could not be fitted with sizes on hand the group opened a campaign with cookbook sales and a raffle directed by Mrs. William Cassall, ways and means committee chairman, to raise $350 to purchase new items.

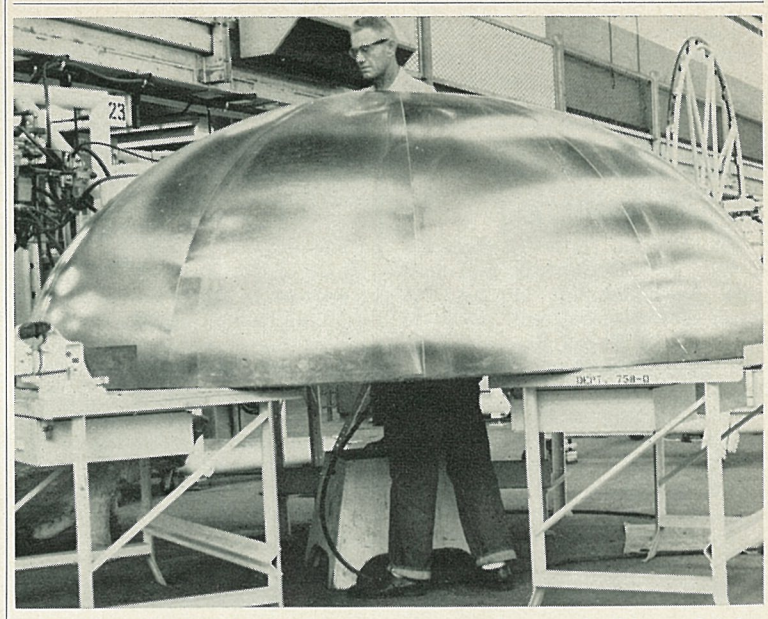
At the end of the two-month period, the need for shoes was still great, and the project expanded to distribute clothing, and even some essential home furnishings.

Recently the committee distributed its 1,000th pair of shoes!

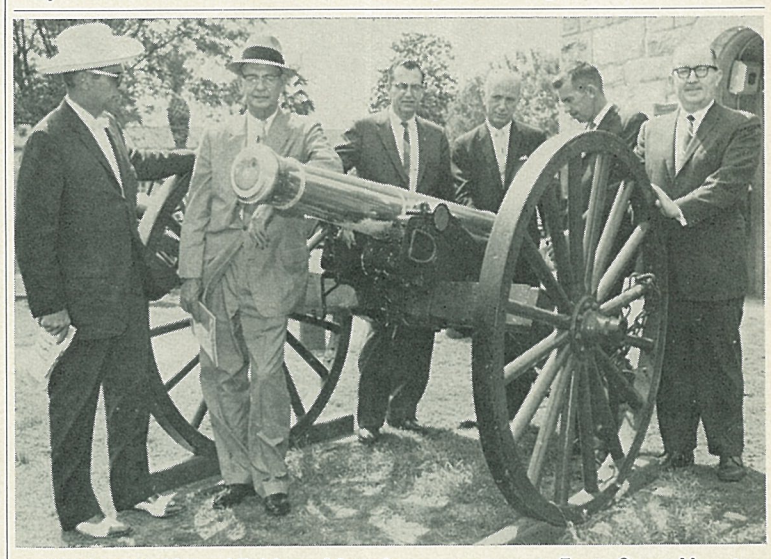
"Operation Shoe" is directed by Mrs. Robert Katan, welfare chairman.

Members of her committee devoted many hours to refurbishing shoes and clothing, and fitting children with the items in classrooms, homes and even on street corners.

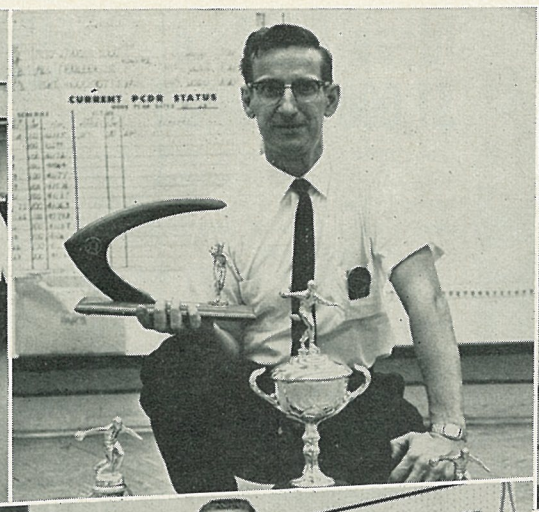
They included Mmes. J. L. Blanchard, D. E. Clem, M. N. Davies, C. J. Fereday, G. W. Fetter, John Livesay, W. A. Neimann, G. E. Smith, C. J. Taylor, W. A. Wigington, J. L. Wilcox, and R. D. Wintz.

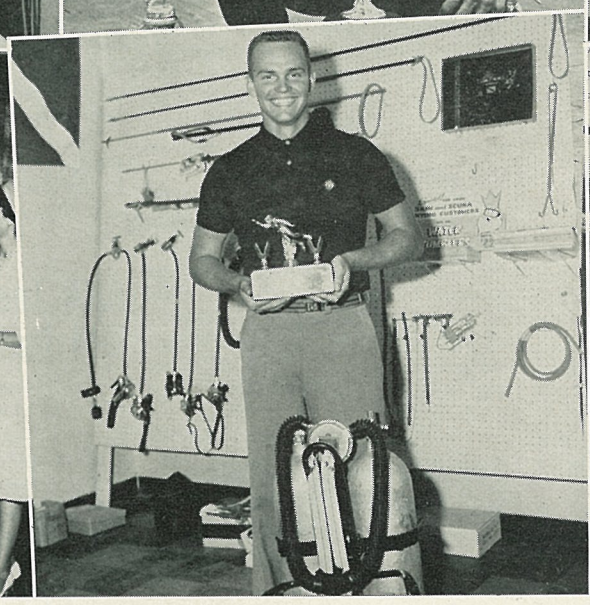


TALL MAN—While GD/Astronautics employees, builders of Atlas and Centaur vehicles, have often risen to great heights in achievement, not all can boast of being this big. Tom Mahnken, Astro photographer, snapped these Astro men (appearing to be one) as they worked on bulkhead at Plant 2, San Diego.



"BIG GUNS"—Visiting historic cannons at Fort Sam Houston during recent Spares Logistic Conference in San Antonio were, from left: J. J. Walden Jr., manager GD/FW office San Antonio; J. J. Minton, GD/FW administrator for program planning; K. R. Aiken, manager of support logistics, GD/Astro; Roy Gallagher, GD/FW manager of spares; John C. Henson, San Antonio; and D. B. Campbell, manager field service electronics, GD/Electronics, Rochester, N. Y.





ROUNDING THE BASES—GD/Astro bowlers at Dyess AFB appear in top row. At left are John Leonard, Wally Mead, Harry Ballowe and "Red" Mowery, who with Pete Schroble and Jack Owens placed second in Officers League and third in Abilene (Texas) City Tournament. At right is IAM team, Mike Armstrong, Gene Madegan, Noble Coffenbarger, "Ole" Olson and Tony Osterman, who won Officers League. In center is John Leonard with trophy display. Lower left is installation of new Astro Wives Club officers at Dyess. Gift is for Virginia Key, outgoing president. Shown are Pat Harbin, installing officer, Rowena Kerber, Mrs. Key, Shirley Thompson, new president, Dorothy Chase, Vera Booth, Linda Sardina. Lower right: Atlas base at Plattsburgh, N.Y., was visited recently by Plattsburgh Mayor J. J. Tyrell and 60 civic leaders. With mayor are Col. R. W. Beck, 556th Strategic Missile Squadron commander; Col. C. W. Fite Jr., SATAF commander; Col. W. R. Close, 820th Aero-Space Division commander. Lower center: Steve Westman, GD/Astro dispatcher, who won all-events at Cape Canaveral "Underwater Games." Westman, shown with trophy and equipment, represented ARA Skin Diving Club in various contests.

Silo Launcher Simulator Installed For Training at Vandenberg AFB

VANDENBERG AFB—An Atlas F-series silo launcher simulator designated T-602 has been installed here by General Dynamics/Astronautics and is now in use by Strategic Air Command's 576th Strategic Missile Squadron.

The trainer is designed to familiarize Air Force crews with procedures used in transfer of the Atlas from its handling trailer to the F-series silo for erection prior to lowering it into the "hard" site.

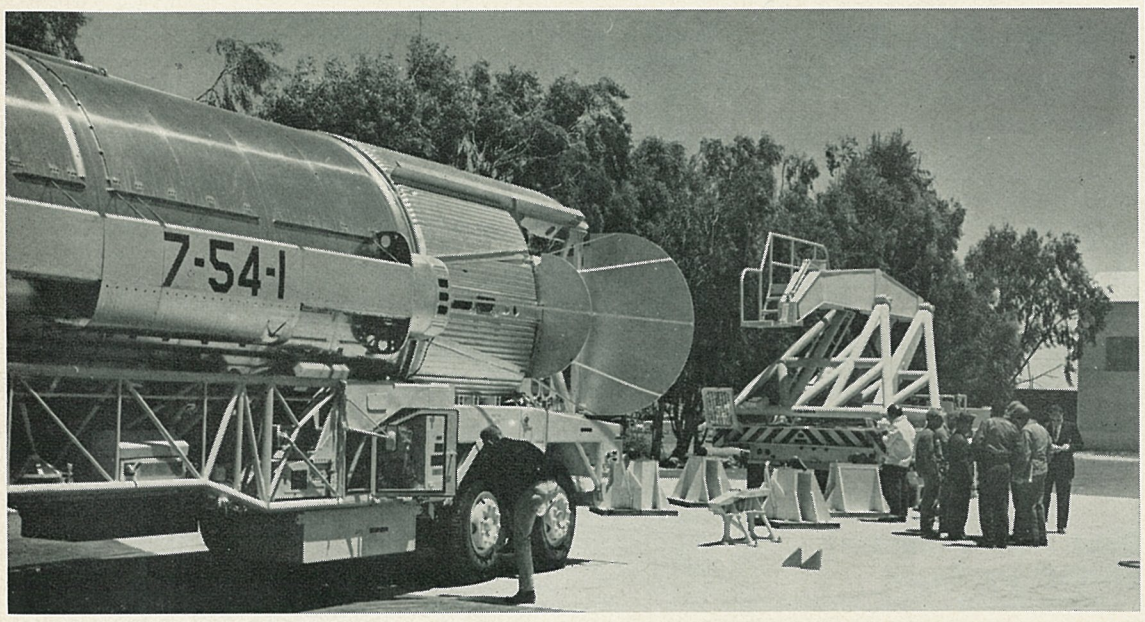
T-602 includes replicas of the silo cap and pad area, a modified missile, pneumatic storage facility to house bottled gas for missile pressurization, missile handling trailer, mobile erector trailer, and a 440-volt power supply.

The trainer is a product of the trainer devices group (Dept. 321-5) of GD/Astro's product support. Principal engineer for T-602 was Jack Gollaher, with Vern Boyer, supervisor, and W. E. Magnuson, general supervisor.

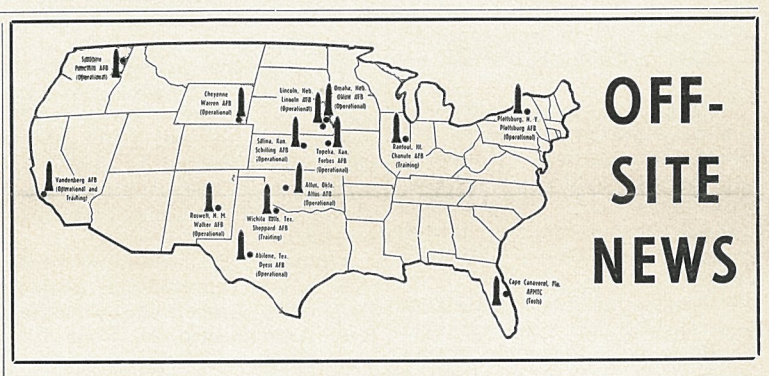
Missile modification was accomplished by Dept. 344-3 at GD/Astro's Plant 2 support center.

At Vandenberg AFB, R. D. Bergan, chief of product support, coordinated arrangements for the trainer's installation, with D. A. Robinson of plant engineering (Dept. 250-2) handling facilities construction.

T-602 will be used in a training program for missile vehicle operators from F-series Atlas bases throughout the country. Five-week classes are climaxed with simulated cross country run.



ARRIVAL—A full size F-series trainer is shown on arrival at Vandenberg AFB where it will be used to train missile vehicle operators.



OFF-SITE NEWS

AFMTC—R. E. Flanagan, ext. 4011.
ALTUS—Jean Foster, ext. 669.
DYESS—G. D. Higgins III, ext. 8370.
EDWARDS RS—Chris Marques, ext. 27.
LINCOLN—Maxine Utley, ext. 412.
PLATTSBURGH—Elly FitzPatrick, ext. 6281.
SCHILLING—J. E. Riley, ext. 213.
SHEPPARD—Steve Delbridge, ext. 8243.
VANDENBERG—Lucy Signorelli, ext. 8-5046.
WALKER—Rod Bricker, ext. 603.

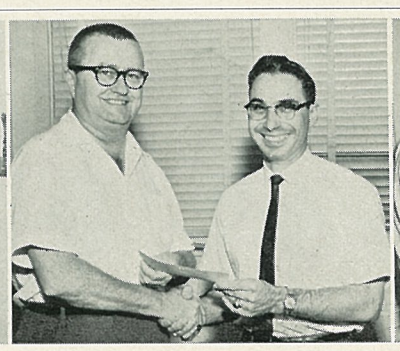
GD/Astro Bowlers at Dyess AFB Collect Assortment of Prizes

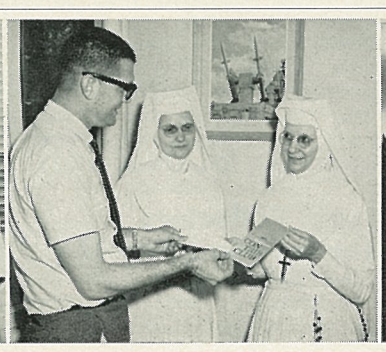
DYESS AFB — GD/Astronautics employees here ranked high in local bowling circles during the season just concluded, collecting a wide assortment of trophies.

Bowling on an IAM team which topped the 16-team Dyess Officers' League were Mike Armstrong, Gene Madegan, Noble Coffenbarger, "Ole" Olson and Tony Osterman.

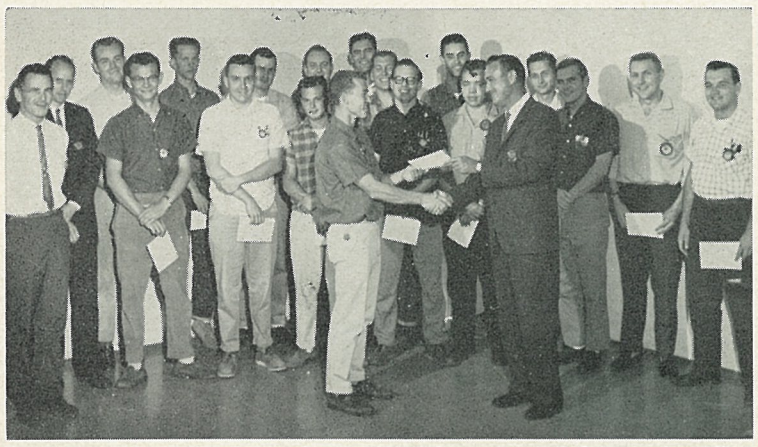
An ARA team of John Leonard, Wally Mead, Harry Ballowe, "Red" Mowery, Pete Schroble and Jack Owens finished as second place team in this league, and then ranked third in the Abilene City Tournament.

Leonard won the largest collection of "hardware," receiving, in addition to team trophies, awards for first place in both all-events handicap and all-events scratch bowling during the latter contest.





FOR CHARITY—In photo at left Charles Phillipps (center), Con-Trib-Club committee member at Cape Canaveral, hands out checks totaling $8,000 to representatives of four Brevard County (Fla.) hospitals. In next photo B. A. Kulchin, right, industrial relations chief and Con-Trib chairman at Schilling AFB, presents $500 check to Robert Pocednik, Salina County (Kan.) chairman of American Cancer Society. Center photo: Jack Ghielmetti of Schilling Con-Trib committee makes $1,500 donation to Sister Marcia and Sister Carmella for St. John's Hospital, Salina, Kan. Right center: Nolan Manly, industrial relations chief at Altus AFB, presents $500 Con-Trib check to Mrs. Lloyd English, chairman of American Cancer Society chapter of Jackson County (Okla.). Right photo: Mrs. Martha Warders represents Con-Trib at Schilling AFB in presentation of $1,500 check to A. E. Landon of Asbury Hospital, Salina, Kan., to help finance expansion.



GRADUATION—W. A. Shoemaker, honor man of optical tooling class, receives completion certificate from G. A. Grossaint, GD/Astro chief tool engineer, as other members of apprentice class look on. At left are B. B. Remsbery, instructor, and J. A. Croft, chief of educational services, GD/Astro.

GD/Astro, GD/Convair Apprentices Complete Optical Tool Course

Seventeen participants in GD/Astronautics and GD/Convair apprentice programs last month completed an intensive course of instruction in optical tooling, conducted under joint auspices of GD/Astro and San Diego City College.

A new physio-optical manual prepared by applied manufacturing research (Dept. 290-2) supplied materials for the course, which was taught by B. B. Remsbery of that department.

The 110-hour program carried three units of City College credit and was of one semester duration.

G. A. Grossaint, chief tool engineer, addressed the class and presented certificates of completion to A. A. Carlson, R. A. Golem, D. R. Hoefs, G. M. Hook, J. D. Hughes, W. E. Johnson, J. E. Lawson, D. J. Lightfoot, S. K. Miller, T. A. Nelson, D. E. Prawalsky, R. G. Scharfenburg, W. A. Shoemaker, all of GD/Astro; C. J. Anderson, F. L. Dohm, E. E. Perkins, J. T. Willingham of GD/Convair.

Group Skating In LA Planned

Group skating in the Los Angeles area will be sponsored by the joint ARA-CRA Ice Skating Club.

Making individual transportation arrangements, skaters will spend the morning (9 a.m. to noon) at Glacier Falls, two blocks from Disneyland. Pre-breakfast skating for dancers only is also available there from 7:30 to 9 a.m.

Following lunch en route, afternoon skating has been arranged at Burbank's Pickwick Arena, newest rink in Southern California.

No reservations are required, but to estimate attendance, participants have been asked to contact Bud Davies, ARA commissioner, at tonight's (July 5) club session, or telephone him at Astro ext. 4042.

The ARA-CRA group holds private skating at Iceland, 6055 Lake Murray Blvd., La Mesa, each Thursday at 6:30 p.m.

Garden Clubs Join For Astro Meeting

GD/Convair Garden Club members will join ARA garden group in a joint meeting next Wednesday (July 11), 7:30 p.m., in ARA Clubhouse at the Kearny Mesa site.

All CRA members are urged to be on hand, said E. L. Zimmerman, CRA commissioner, to finalize plans for the coming summer flower show.

Both CRA and ARA clubs will combine to make arrangements for the Dahlia, Fruit and Vegetable Show set for Aug. 12.

No meetings will be held for the GD/Convair group during August and September, Zimmerman reminded.

Designs for Parade Entries Encouraged

General Dynamics employees have been invited to submit entries in the San Diego Junior Chamber of Commerce contest to select a design for the city's 1963 Tournament of Roses parade float.

Contest winner will receive two tickets to both the parade and game in Pasadena, Jan. 1, 1963.

Information and applications are available to San Diego County residents from the Jaycee office, 947 Columbia St. Entry deadline is July 16.

Pistol Teams Vie in Shoot

Two GD/Convair and six GD/Astro sharpshooting teams competed in the annual Industrial Recreation Council Pistol Shoot hosted by the CRA group Sunday (June 24).

No. 1 teams fielded by GD/Convair and GD/Astro stood in third and fourth spots with scores of 1,137 and 1,130. First place was garnered by the NAS Civilian team whose team score of 1,154 garnered the perpetual trophy.

Altogether, 16 teams took part, with others representing County Employees Association Sheriffs, Ryan Aeronautical Co., Rohr Aircraft Corp., and Telco.

Standings of CRA's third-place entry were J. L. Williamson, 285; D. V. Mardis Jr., 283; W. G. Walker, 283; C. A. Hornburg, 286.

Individual scores of the ARA team, in fourth spot, were Roland Schneider, 281; Ralph Sanderlin, 285; Ronnie Legg, 284; Harold Sicard, 280.

SPANISH COURSE INTEREST MOUNTS

Interest continues to mount in the current CRA-ARA "tourist" Spanish course with so many attending that a third class night has had to be added.

Jim Hardison of GD/Convair Dept. 15-0, instructor, said that beginners now can attend classes on Mondays and Tuesdays. Review class is on Wednesday.

A larger room, Room 4, has been set aside in Balboa Park's Conference Bldg. for all sessions. Each class is from 7-9:15 p.m.

Still slides of Mexico City, Xochimilco, Taxco, Acapulco will be shown the week of July 16 so that students can learn to pronounce place names correctly in Spanish. Hardison will describe the highlights and relate history and culture.

Sign-up is now being taken for a trip into Mexico the last two weeks of August. Price of the round trip tour by train from Mexicali to Mexico City and Acapulco will be approximately $350 a person.

Sales Days Listed

Employee sales days at GD/Convair and GD/Astro salvage yards for the next four weeks are:

GD/Convair—July 7, 21.

GD/Astro—July 14, 28.

Yards are open at both Plant 1 and Kearny Mesa site on an alternating Saturday schedule, 8 a.m. until noon.

Ideas Produce $1,000 Windfall

A young man, now with General Dynamics/Electronics, has turned his good ideas into hard cash to the tune of nearly $1,000 over the last year.

Oak H. Elder Jr., 27, has increased his income by $891.30 and saved the company $10,027 by his employee suggestions since June, 1961.

All of his half a dozen approved suggestions, submitted while he was with GD/Convair manufacturing control at Plant 2, eliminate unnecessary operations and double handling of paper work. His awards ranged from $14.30 for one of his first installed suggestions last June to $202.70, partial payment, for one accepted last month.

Elder joined GD/Convair Dept. 6 in 1956. After a couple of years military service, he returned to the company in manufacturing control in 1959. Early this year he joined GD/Electronics, also in manufacturing control, and is carrying on the good work of turning in suggestions for better ways to do a job.

Bond Buying Total Of 15,000 Expected

Preliminary results of the recent U.S. Savings Bond campaign at GD/Astronautics indicate nearly 15,000 employees will take part in the payroll deduction plan for bond purchase.

Tabulation of returns is still in progress as more enrollments are received daily. The drive was conducted June 11-15.

Figures show the average participating hourly employee invests $7.11 per week, with salaried participants averaging $17.91 per pay period.

Astro Wives View 'Make-up and You'

SCHILLING AFB — "Make-up and You," a presentation by Mrs. Shirley Betts, entertained 78 members of Astro Wives Club at a luncheon meeting at Schilling Officers Club early last month.

Hostesses were Mmes. E. R. McCracken, Robert Morris, Dan Nordek and Keith Nyberg.

Winning door prizes at the buffet affair were Mmes. Don Settle, Frank Elliott, Grady Couch, Ray Crowell, C. W. Dale and Bob Gutzwiller.

Hoyt and Gillon Die Of Heart Ailments

Two widely-known General Dynamics men died suddenly last month, both following heart attacks. They were:

William W. Hoyt, manager of employment at GD/Pomona, who joined the company at San Diego in 1943, transferring to Pomona in 1951.

Verser C. Gillon, manager of program planning at GD/Fort Worth, who had been with the company since 1942. His aviation career involved major assignments in almost all phases of the Fort Worth plant.

Dept. 900 (Centaur) Visited by Cupid

General Dynamics/Astronautics Centaur invaded Venus' traditional province last month to send four Dept. 900 (Centaur) employees altar-bound.

Newly wed are Tom Pastore (Dept. 974-4) to Pat Eagen of Riverside; Linda Griffin (Dept. 974-2) to Terry Britton of San Diego; and Art Muller (Dept. 974-2) to Lois Rice (Dept. 951-1).

Stamp Collectors Take a 'Vacation'

CRA Stamp Club began its usual summer vacation period this month, said Commissioner Jack Benedict.

No meetings will be held this month or next, with regular schedule resuming in September. Meeting nights are first Thursdays of each month in GD/Convair executive dining room, Pacific Hwy.

FASHION SHOW THEME 'AROUND THE WORLD'

DYESS AFB — Astro wives here were feted recently at an event which included a fashion show, door prizes, and musical entertainment.

The show, under ARA sponsorship, was arranged by Nancy Wilson, ARA secretary, and was held in mid-June at Dyess Officers Club.

Theme of the fashion show was "Around the World in Vacation Wear," with latest styles provided by Thornton's of Abilene, Texas. Models were Astro wives, Norma Cutts, Glenna Van Hoose, Beryle Billitti, Judy Yarborough, Virginia Key and Kathy Grant. Peggy Johns was fashion commentator.

Ten door prizes and a $50 gift certificate were awarded, and Jonny Barnes Trio provided music. More than 150 wives attended.

ARA Teen-Age Club Will Dance July 7

Ray Nears band will be featured at the ARA Teen-Age Club dance, 7:30 to 11 p.m., July 7 in ARA Clubhouse.

The event will be the occasion for free photographs to be mounted on club membership cards. These will be taken up to 9:30 p.m. Because of increased size of the group, photos are necessary for identification purposes.

Sport shirts and slacks for boys and school clothes for girls are prescribed for this dance, as well as for a similar event scheduled for July 21.

Teen-Age Club is open to employees' sons and daughters, with membership applications available at employee services office, Bldg. 8. The group holds dances the first and third Saturdays of each month.

Stussy Teaches Gems Course

Thirteen members of ARA Rockhounds recently completed a lapidary course in the club's workshop, while seven more are enrolled in another class now in progress.

More than 60 adults have completed the class, taught by John Stussy, since the series began about six months ago.

Instruction covers use of shop equipment for finishing and mounting raw stone into jewelry.

Members who have completed the course are entitled to use club facilities from 5 to 9:30 p.m. Mondays; 1-3 and 7-9 p.m., Tuesdays through Thursdays; 7-9 p.m. Fridays; and 9-11 a.m. and noon to 3 p.m. on the first and third Saturdays of each month.

Further information on rockhounds and lapidary classes is available from ARA Commissioner Fred Baugh, ext. 1446, or Hans Jackson, ext. 1446 on second shift.

Astro to Face City Champs

ARA's representative softball team, undefeated in six consecutive games in the first round of AAA San Diego City League play, will meet the 1961 city champions at 8 p.m. Saturday (July 7) on the ARA field.

Astro hurlers Robert Lange, Dept. 223, and Roy Neie, Dept. 756, will share pitching assignments as the ARA team faces Old Town Tamale.

Spectators are welcome at all games at ARA field which features glareless lighting, grassed outfields and bleacher seating. There is no admission charge.

Bridge Club Plans A Lending Library

Books by Goren, Silidor, Sheinwold, Jacoby and others will adorn shelves of a lending library soon to be established by ARA Bridge Club.

The books, covering basic fundamentals of bridge, competitive play, and advanced theory and techniques of the game, will be available for loan to club members.

The club, an affiliate of the American Contract Bridge League, meets for play each Thursday at 7:30 p.m. in ARA Clubhouse. Fractional master point awards at each session have full value toward nationally recognized ratings.

Camp Application Blanks Available

Applications for summer sessions at Camp Cuyamaca are now available at all GD/Astro employee services outlets.

The camp, operated by the San Diego City-County Camp Commission, is open to boys and girls between 8 and 13 years of age. Sessions begin weekly throughout July and August. Application blanks contain information on the camp and its program.

Choralers Rehearse For Coming Shows

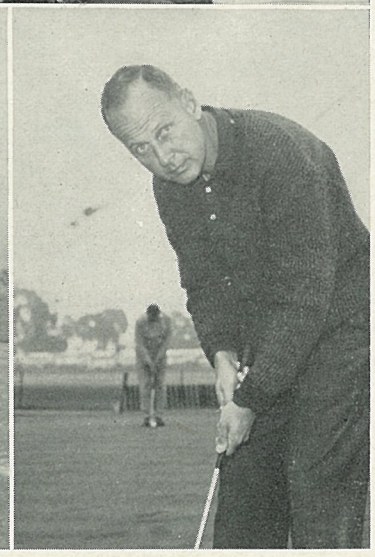
An engagement at Mission Gorge Trailer Villa July 26, and appearance in a four-day run of a Musical Theater Guild production in August are now in rehearsal stages with Astro Notes, ARA choral group.

The group has developed a repertoire of spiritual, patriotic, novelty and show numbers directed by Jim Rogers. Rehearsals are held each Monday at 7:30 p.m. in ARA Clubhouse.

ASTRO DAUGHTER'S ESSAY A WINNER

Winner of a recent essay competition on the subject "What Democracy Means to Me," was Carolyn Dieter, 11, whose father Ralph is a facility analyst in GD/Astronautics funding administration (Dept. 154-2). Carolyn won in the category for 5th grade students.

JUNE GRADS—Receiving certificates of completion for ARA Rockhounds lapidary class from John Stussy, shop chairman, are (kneeling) George Carter and Clyde Gould; standing, Walter Pauls, Clark Hay, Bill Vecera, Donna Vecera and Cecelia Carter. Six others also completed course.



CLUB GOLFERS—Linksmen 438 strong turned out for annual NMA Southern California Area Golf Tournament last month at Torrey Pines. At top left, Harold Purnell of GD/Astro and Gerry Cox of GD/Convair check starting times. Cox was tournament chairman. Top center: Russ Davis, assistant tournament chairman, GD/Convair, collected trophy for creditable 78 over tough south course. Top right: Mr. and Mrs. Art King who with GD/Astro aides handled scoreboard. Lower left: Rudy Halabuk, Ryan club's president, who with Ryan aides handled special events prizes. Lower right: Art Wood, San Diego area council president, demonstrates his cross-handed putting grip. Lower center: from left, Barney Chambers, Jim Dempsey, Joe Famme and Ted Schroeder, among first foursomes off tee June 2. Photos by GD/Convair's Larry Lawson.

ARA Calendar

(GD/Astronautics Recreation Association has some 40 activities in operation for employees. For information call ARA Headquarters, ext. 1111.)

★ ★ ★

ASTRO MOTORS — Motorcycle club meets at 7:30 p.m., July 18, ARA Clubhouse.

ASTRO NOTES — Chorus rehearses 7:30 p.m., Mondays, ARA Clubhouse.

ASTRO PLAYERS — Meeting and one-act play reading, 7:30 p.m., July 11, ARA Clubhouse.

GARDEN CLUB — Meeting 8 p.m., July 11, ARA Clubhouse.

GOLF—Sweepstakes at Circle R, July 21, 22. Call ARA, ext. 1111, for starting times.

GROUP TRAVEL — Hawaii trip Aug. 18-Sept. 1. $300 per person includes transportation and hotel, $340 includes additional island tours.

ICE SKATING—Los Angeles trip July 8. Skating at Iceland, 6055 Lake Murray Blvd., La Mesa, Thursdays, 6:30 p.m. Details from Bud Davies, ext. 4042.

MOVIE CLUB—Meeting 7:30 p.m. July 16, ARA Clubhouse. Recent ARA and professional films will be shown.

RIDING CLUB—Horse show 9 a.m.-5 p.m. July 22, ARA arena.

SINGLES—Dances July 6 and 20, ARA Clubhouse. Beach party July 21.

SOFTBALL—ARA team meets Old Town Tamale, 1961 champs, 8 p.m. July 7, ARA field. Free.

TEEN-AGE CLUB — Dance party 7:30-11 p.m., July 7, ARA Clubhouse. One guest admitted per membership card.

TRAILER CLUB — Outing at Oakzanita July 21-22. Wiley Clark is wagonmaster.

WIVES AUXILIARY — Free classes in cake and gelatin decorating on Thursdays, 9-10:30 a.m., ARA Clubhouse. Reservations with Mrs. R. J. Buchan, BR-8-8706.

GD/Astro Son Named To All-District Nine

WALKER AFB — Recently named to the eastern New Mexico all-district baseball team by a panel of coaches and sports writers was Tony Loftis, stepson of GD/Astro's Dick Chrysler, Dept. 619-6, here.

Tony, 17, is a Roswell High School sophomore, and leads his school team with five home runs and a batting average of .417. He will play on an American Legion team during the summer.

Series of Horse Shows Slated For ARA Arena This Summer

Another in the series of six horse shows to be presented by ARA Riding Club this year will be held from 9 a.m. to 5 p.m., July 22 in the ARA riding arena.

Four additional shows, conducted by other area riding clubs are also scheduled for the arena during the summer. No admission is charged to these events.

Club facilities in the ARA Area include the arena with bleacher seating for 300, corral and work-out area, and tack shack. The club also owns horses for riding and a wagon for hay rides.

Club events include instruction in both English and western riding techniques and trail rides.

All Astro employees and members of their families are eligible to join the Riding Club, and may contact Bill Penn, ext. 1019, for details. Members receive discount rates on horse rentals, and if they are horse owners may use club facilities for boarding their mounts and storing equipment.

Art Smith is ARA commissioner, Les Allen, Riding Club president, and Carol Jackson, show manager.

BIG ONE—Art Smith, ARA Riding Club commissioner, and Carol Jackson, show manager, inspect huge "Best of Year" trophy held by show director Don Brannan. Trophy will go to top scorer in series of horse shows planned during summer in ARA arena.

Astro and Pomona Golfers Compete

GD/Astronautics and GD/Pomona golfers vied June 16 at Gilman Hot Springs, with Astro winning the interdivisional contest 86 to 46.

Low round score of 73 was shared by Astro's Mac McCord and Bob Antonoplis of Pomona. McCord tallied a double-bogey six on the par four 18th hole.

A buffet dinner followed the matches with ARA Commissioner John Sentovic and Paul Kiszeli, PRA commissioner, presiding.

Winter Keg League Award Party Held

Smorgasbord and dancing to a four-piece band feted 180 GD/Astro bowlers and guests attending ARA's fourth annual Winter Trophy League award party last month in ARA Clubhouse.

Jack Boyle, ARA commissioner, was host. Guests of honor, accompanied by their wives, were Jack Dillon, secretary of San Diego Bowling Association, and Dr. Robert Penn, general manager of Clairemont Bowl.

Sports & Recreation

Papier-Mache Experts Needed To Put Together ARA Float

"If you're an old hand with papier-mache and chicken wire, I'd like to talk with you," GD/Astro's Chuck Ogle, Dept. 290-1, said this week.

ARA Commissioner Ogle heads an effort to produce a GD/Astro Recreation Association float for entry in this year's El Cajon Mother Goose Parade.

He will select about a dozen to assist and volunteers may contact him at ext. 2551 or after working hours at JU-3-1575 for details.

The float will be of wood frame and papier-mache construction on an automobile chassis. The group is presently seeking a suitable car for modification with chassis and power plant in good condition and preferably equipped with automatic transmission.

Design and construction will begin immediately to complete the ARA float in time for November parade.

UNDERGROUND — Carlsbad Caverns south of Roswell, N.M., attract many GD/Astro folk assigned to Walker AFB. Pictured in 14-acre "Big Room" are GD/Astro's Mr. and Mrs. Andrew E. Kampmann, who took camera tour recently.

One-Act Play Among Actors' Projects

Astro Players, ARA drama club, will meet at 7:30 p.m., July 11 in ARA Clubhouse for a business session and drama workshop demonstration.

"The Apollo of Belac" will be read by workshop participants and directed by Pauline Middleton. The one-act play is one of several projects now under study at sessions each Wednesday at 7:30 p.m.

All employees interested in the performing arts have been invited to attend this, and subsequent Astro Players meetings.

Singles Club Draws Forty to Barbecue

Dances with live music on July 6 and 20, and a beach party July 21 are on the agenda for ARA Singles Club, social group for single employees 21 and older.

Dance admission will be 50 cents per person upon presentation of GD/Astro identification cards. Beach party details will be announced at a later date.

Last month more than 100 attended a Singles Club dance in ARA Clubhouse June 22, with over 40 persons taking part in a barbecue in the main picnic shelter June 24.

FLYBY—F-106s make impressive sight during "Operation Blue Blade" inspection of 456th FIS at Castle AFB, Calif., as they pass overhead. GD/Convair President J. H. Famme was speaker at ceremonies, pointing out continuing need for piloted aircraft.

Dynamics Researcher Foresees Moon Cities

Factories will be operating in cities on the moon by 1980, manufacturing spaceship fuels from lunar raw materials and distributing the products to refueling stations in outer space, a General Dynamics scientist predicted last month.

Dr. Theodore B. Taylor, senior research adviser of General Atomic Division, described "the true age of space exploration" over the next 30 years at the Second Annual Texas Nuclear Science Symposium in Austin, Tex. The symposium is sponsored by the University of Texas and the Texas Atomic Energy Research Foundation, composed of 11 Texas electric power companies.

Dr. Taylor is technical associate director of Project Orion which is being carried on for the Air Force at General Atomic in San Diego, Calif. Project Orion involves the use of controlled nuclear explosions to propel a space vehicle of 1,000 tons or more on manned, long-range missions into outer space.

"A considerably larger scale of activity in space should be predicted for the years between now and the end of the century than has been generally suggested," Dr. Taylor said.

His own expectations, he added, were based "on what we already know about space, on the human urge to explore, and on the propulsion systems that are possible."

"In 1970," Dr. Taylor said, "manned orbital space stations will be permanently occupied and crew rotation will be routine. Man will have landed on the moon and the site of a permanently manned lunar base will have been dedicated. Instrumental probes will have reached Mars and Venus and we will know whether at least elementary life forms exist there.

"No one will have yet landed on Mars in 1970 — unless some major decisions are made in the next two years. But the 'best bets' for deep space transportation will have been recognized and under development for a number of years."

By 1980, lunar factories might employ nuclear power plants to generate electricity. This would be used both to electrolyze the supplies of water believed to exist on the moon — to produce hydrogen and oxygen for use as propellants—and to process other raw materials. Materials will be shipped into space at the rate of one million tons annually, at a cost of about $5 or less per pound.

"Regularly scheduled trips to the moon will carry hundreds of passengers per year," Dr. Taylor forecast. "The moon will have several small 'cities.' Their populations will be busy building and operating astronomical laboratories, and manufacturing space ship propellant from lunar raw materials.

"Mars will have been thoroughly explored and have permanently occupied bases on its surface. The two small Mars satellites, Deimos and Phobos, will be permanent refueling stations and observatories.

"Many spacecraft will have orbited Venus and landing parties will have explored the surface, if the temperature is tolerable. Expeditions also will have landed on the satellites of Jupiter and Saturn.

"In 1990," Dr. Taylor said, "the human race will have explored the solar system in detail and will see itself in a totally new perspective." By then, the nuclear scientist conjectured, the first child will have been born on the moon, and space travel will be commonplace and possible for any reasonably healthy individual.

"Industrial activity related directly to the exploration and the use of space," he suggested, "will probably involve more than $50-billion per year. By the end of this century, the rate of accumulation of new knowledge will be so prodigious that ultimate human responses are now unimaginable."

Dr. Taylor added that his projections depended both on the normal progression of this country's current manned space flight and lunar landing program and on the development of more effective means of transportation in space.

Piloted Craft Need Continues, Says Famme

President J. H. Famme of General Dynamics/Convair praised the Air Force, and especially the 456th Fighter-Interceptor Squadron, Castle AFB, Calif., at the squadron's recent annual inspection.

Speaking during "Operation Blue Blade" ceremonies, Famme said that, in this aerospace age there is still, and will be, a great need for piloted aircraft.

"The Air Force has an awesome responsibility. While we must be on the alert for the spy in the sky, we must look also for the sniper in the banana tree.

"And, this is why conventional aircraft will continue to be needed."

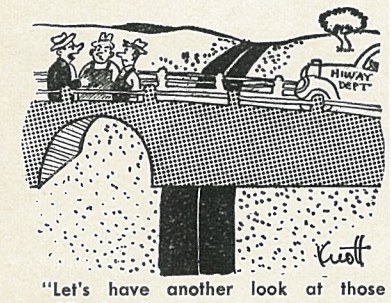
Inspecting officer, Maj. Gen. Conrad F. Necrason, commander of the 28th Air Division, praised the 456th as the "finest F-106 squadron in the world," because of its accomplishments over the last year. The squadron captured top honors as high-scoring F-106 team in last fall's William Tell weapons meet at Tyndall AFB, Fla.

Maj. Wendell J. Smith, assistant operations officer, and M/Sgt. John Muir, flight line supervisor, received Air Force Commendation Medals for work in maintenance at William Tell, operational readiness inspection, and tactical evaluation of the squadron. Lt. Col. James L. Price, squadron commander, was team captain at the weapons meet.

Both Maj. Gen. Necrason and Brig. Gen. Thomas A. McGehee, commander of the San Francisco Air Defense Sector, paid tribute to Lt. Col. Price for the "high and exemplary" degree of efficiency among his units.

The 456th FIS was the first squadron to be declared operationally ready with F-106s which went to the California squadron in the fall of 1959. Supporting the Convair-built craft with the 456th is C. W. Stevens, GD/Convair field service representative.

PLAUDITS—GD/Convair President J. H. Famme praises 456th FIS, Castle AFB, Calif., at annual inspection. Seated from left are Brig. Gen. T. A. McGehee, commander SFADS; Maj. Gen. C. F. Necrason, commander 28th AD; Lt. Col. James L. Price, 456th commander.



"Let's have another look at those specifications."

Programmed Instruction Chapter Organized by GD/Convair Men

First West Coast chapter of the National Society for Programmed Instruction has been formed in San Diego under direction of GD/Convair programmers.

Over half of the charter membership of 42 are from training and publications functions in GD/Convair, GD/Astro, and GD/Electronics. Others represent educational, military, and commercial groups in the San Diego area.

Pro tempore slate of officers named at the June 14 organization meeting is all from GD/Convair—J. D. Meacham (Dept. 16-1), president; P. H. Selby (Dept. 48-95), production flight training, vice president; C. M. Keys (Dept. 16-1), secretary; and M. M. Monroe, also of Dept. 16-1, treasurer.

The national organization, formed early this year, is designed to bring together people interested in various facets of the new field of programmed instruction; to collect, develop, and disseminate information concerning programming, machines, application, development, and administration.

First chapter was established at Amarillo, Texas, and the next in New York City. The San Diego group is the third in the nation and first in the west.

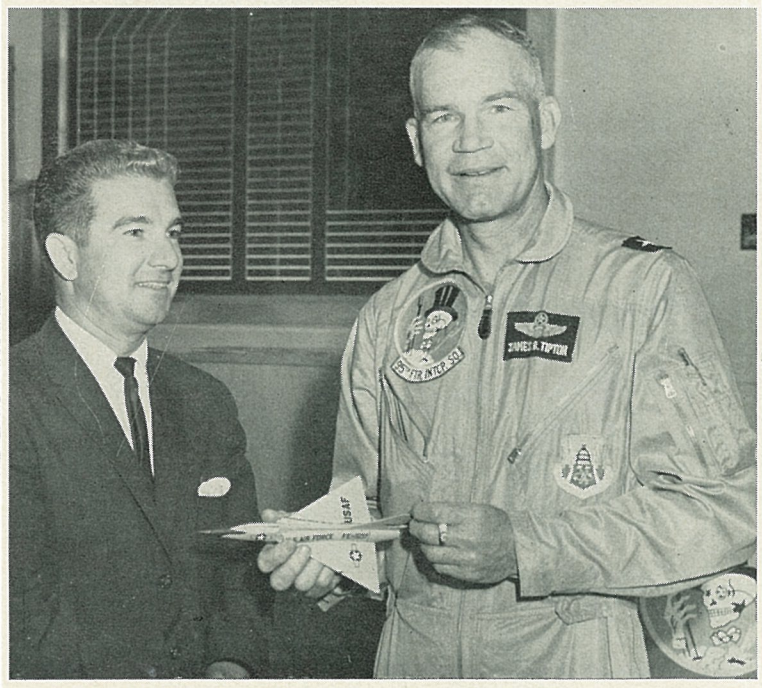
A regular monthly schedule of meetings will be established to keep members up to date on activity in the programming field. Nomination of permanent officers will be in September with election the following month.

Next meeting will be July 26 in the Convair executive dining room, Pacific Hwy.

Sr. Engineers Earn Master's Degrees

Two GD/Fort Worth engineers received master's degrees in mechanical engineering recently under the SMU Graduate Program.

They were R. A. Heath, senior structures engineer loads group, and T. S. Love, senior test engineer.



JOINS MACH 2 CLUB—Brig. Gen. J. B. Tipton, commander Washington Air Defense Sector, receives F-106B desk model and Mach 2 credentials after flight in F-106 from F. H. Weaver, GD/Convair field service rep, at 95th FIS, Andrews AFB, Washington, D.C.—USAF Photo.

Rex Warden Named To GD/Pomona Post

Rex W. Warden Jr., former head of the Colorado Springs office and most recently Corporate director of government relations, has been appointed assistant to the vice president-plans and programs at General Dynamics/Pomona.

Rex Warden

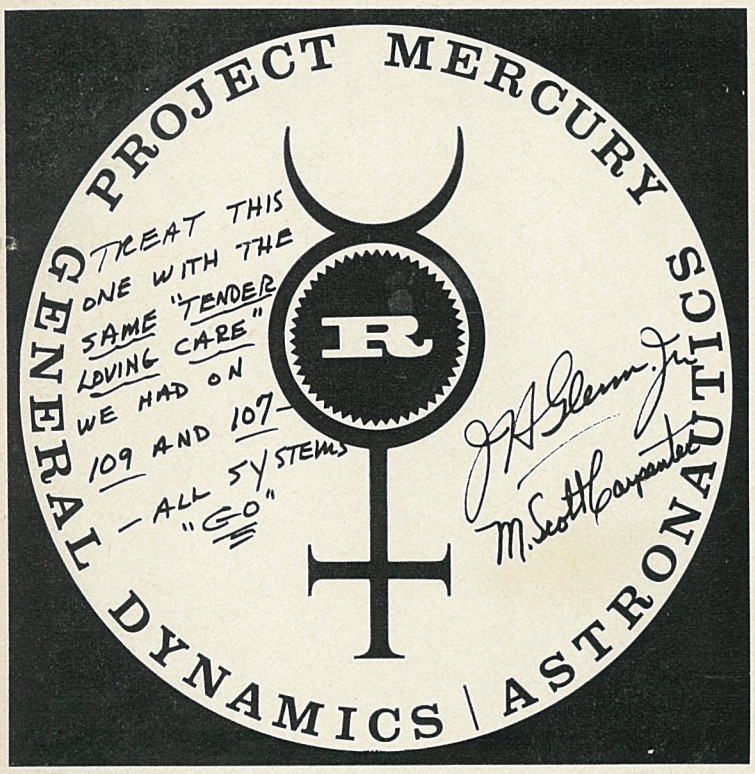
Warden, an Air Force flyer and Korean veteran, joined the company in 1954 and was chief pilot at the Palmdale facility before going to Colorado Springs.

GD

ASTRONAUTICS EDITION

GENERAL DYNAMICS NEWS

Vol. 15, No. 15 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, July 18, 1962



POPULAR—Project Mercury reliability symbol on Atlas slated for next man-in-space launch was autographed by Astronauts Glenn and Carpenter on recent visit to GD/Astro plant. Reproduced for bulletin board display, symbols proved overly popular; disappeared as fast as they were put up.

Atlas Veterans Filling Key Positions in SLV

General Dynamics/Astronautics has assigned a group of Atlas program veterans to fill key posts in the recently projectized Space Launch Vehicle (SLV) program organization.

Brought together are management, engineering, manufacturing operations and program control functions for all space programs utilizing Atlas as a space launch vehicle.

President J. R. Dempsey announced formation of this group early in July and designated C. S. Ames, vice president and program director—space launch vehicles, to head it.

Ames has filled eight key positions, with other appointments pending. Included are three assistant program directors responsible for program offices: R. S. Campbell for Atlas-Agena; R. W. Keehn for Mercury and Centaur; and J. S. Berggren for standard space launch vehicles. Also reporting directly to Ames are: P. E. Culbertson, manager of systems engineering; F. D. Applegate, chief engineer-design; L. L. Tuttle, manager of manufacturing operations; R. A. Wohl, manager of program control; and T. L. Maloy, manager of launch operations. W. J. Maloney is reliability control program administrator for the SLV function.

Dempsey indicated the new organization will have prime responsibility for budgets, expendi-

(Continued on Page 2)

15,000 BUYING PAYROLL BONDS

Approximately 15,000 General Dynamics/Astronautics employees now buy U.S. Savings Bonds regularly through payroll deductions.

During June some 4,000 new buyers joined the program following a solicitation of non-buyers.

Percentage figures show that approximately 38 per cent of Astro employees working off-site are regular bond purchasers, while at the main plant the figure is approaching 50 per cent.

Tabulations continue following contacts with employees on leave, vacations or travel status during the time the campaign was in progress. This year only those who were not signed up for bond purchases through payroll deductions were contacted.

NEW ASSIGNMENTS—These men hold key positions in recently projectized Space Launch Vehicles function at GD/Astro. Seated from left are J. S. Berggren, R. W. Keehn, C. S. Ames (vice president and program director), R. S. Campbell. Standing, same order, L. L. Tuttle, R. A. Wohl, P. E. Culbertson, W. J. Maloney, T. L. Maloy, F. D. Applegate.

Axe Poised For Slash At High Utility Costs

Most folk would flip, if told their utility bills would exceed $1.5 million during the next 12 months.

But that's the prospect at General Dynamics/Astronautics where employees are being asked to lend a determined hand to conserve and economize.

Utilities include electric power and lights, water, gas, compressed air and processing systems. Since March a consulting firm has studied Astro's use of these items with an eye toward cost reduction. Some recommendations have already been adopted; others will follow.

Goal of the effort is to chop as much as $200,000 off these costs, a figure well within reason from preliminary studies.

Mortimer Rosenbaum, executive vice president, has designated W. J. Stanley, manager of plant engineering, to head the effort. James Dallas, utilities operations supervisor, is coordinating the in-plant work.

One specific area—conservation of electricity—has been singled out as one in which the average employee can help most.

Last year Astro used almost 58-million kilowatt hours of electricity, enough to serve 17,285 average San Diego homes which use about 3,350 kilowatt hours each. Much of this went into lighting.

"Rumors persist that it is cheaper to leave lights on at all times than to turn them off and on as needed," Stanley said. "This is NOT true."

A good example involves Bldgs. 1 and 3, major office areas.

To burn all lights there constantly consumes about 248,832 kilowatt hours monthly for which Astro pays about $2,500. Used 10 hours daily through the normal work week only, the cost drops to about $760 monthly for 76,032 kilowatt hours.

This would mean an annual saving of $20,736!

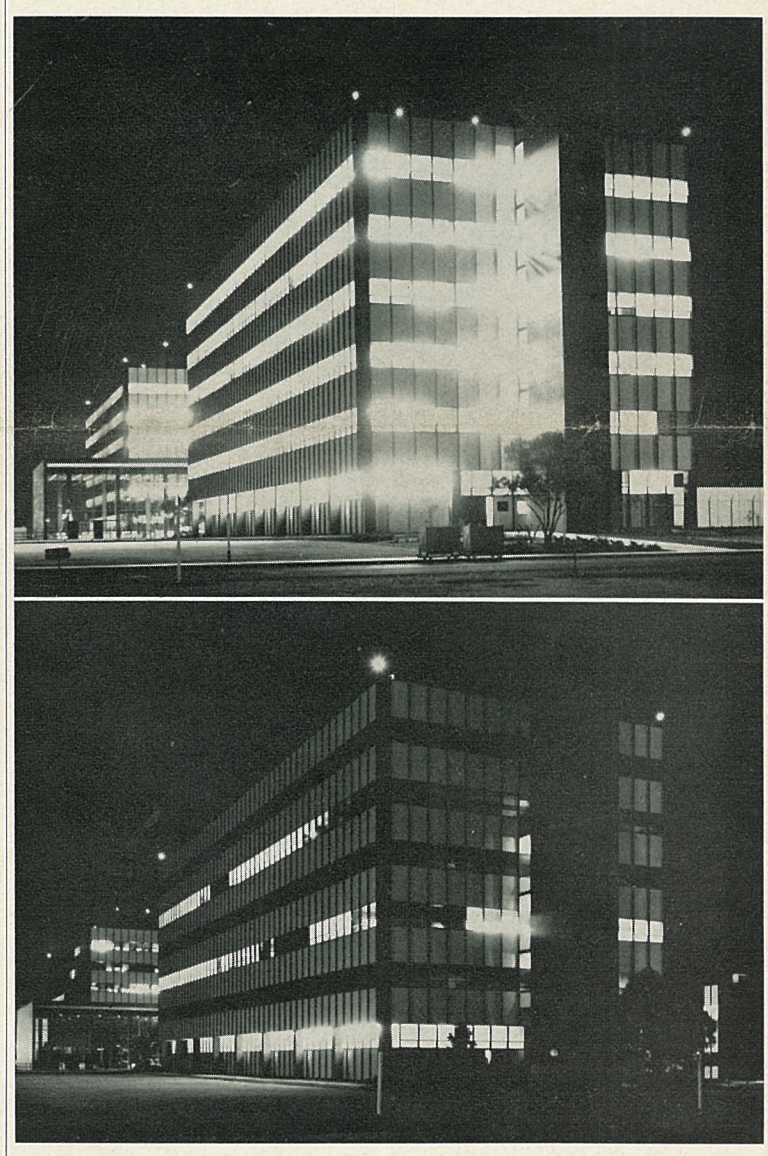
"The same holds true in other areas," Stanley added. "We urge every employee to turn off every light not actually needed. And never leave lights on in unoccupied areas when departing at the end of a shift."

Obviously, many departments are assisting in the program. In areas conducting metal cleaning and chemical treatment of production materials cost reducing methods are being employed following mutual agreement of merit. In some areas individual employees have come up with still further ideas for reducing utility costs.

Plant engineering has already slashed costs by such means as reducing the number of lights per standard in parking lots, staggering hallway lights, reducing unnecessary lights in factory and office areas and the installation of switches allowing partial use of lighting as needed.

Employees with helpful suggestions concerning the program or those who may need information on how to turn lights off are invited to contact Dallas at ext. 2140.

The present program will continue indefinitely and includes all Astro installations in the San Diego area.



BEFORE AND AFTER—Photos of Bldgs. 1 and 3 at GD/Astronautics offer dramatic contrast between use of all lights, and only those actually needed. If lights were left on full for month, cost would be $2,500. Cost is cut to $760 by using lights only when necessary.

Charger Game Will Benefit Tri-Hospital

Tickets for the Aug. 11 San Diego Chargers vs. Dallas Texans game will go on sale Monday (July 23) at both GD/Astronautics and GD/Convair employee services and at outlets at Sycamore, Plant 2, Rose Canyon and GD/Electronics' Hancock St. facility.

Sponsored by the San Diego Union and Evening Tribune, the game will be a benefit for the Tri-Hospital Building Fund to which General Dynamics employees in the San Diego area have been contributors for the last three years.

R. H. Biron, Dynamics vice president and a solicitation leader in the original Tri-Hospital campaign, said he hoped the game would raise more than $35,000 for the fund.

Tickets are priced at $5 and $3.50 for reserved seats, $2.50 for general admission, and 75 cents for children.

Biron said that a report will be forthcoming soon on the total amounts that Dynamics employees have contributed to Tri-Hospital thus far, making possible construction recently completed at Sharp, that now under way at Scripps, and additions scheduled to start next year at Mercy.

Detective Work

Info Center Draws Some 'Lulus' When it Comes to Questions

Ever need to know about the fee for a South Dakota birth certificate?

Or the internal resistance between the terminals of a certain voltage comparator? Or perhaps whether Warren AFB has switched to daylight saving time?

These, and countless other questions have poured into General Dynamics/Astronautics information-center (dial INFO) since it opened for business a few months ago.

Need to know something and lack the answer? You might try dialing INFO at GD/Astronautics home plant. Chances are you'll get an answer, or a tip on where to find it.

The center was established by communication (Dept. 128) to boost efficiency and economy of GD/Astro operations by providing those with "a need to know" with a central clearing point for their questions.

An Astro employee with a question has only to dial ext. 4636 (INFO) to set operators Virginia Orpin or Betty Gossett on the trail of an answer.

When INFO was set up, all departments were queried for information available in their groups. This data was classified by topic on file cards (the file now covers over 3,000 areas) to which oper-

(Continued on Page 2)

Log Book Entries

A. D. Stone, GD/Astro Dept. 155, recently received his 25-year pin.

Service Emblems

MAIN PLANT

Service emblems due during the period July 16 through July 31.

Twenty-year: Dept. 141-1, E. G. Callard; Dept. 143-9, S. S. Smith Jr.; Dept. 250-2, G. J. Buck; Dept. 335-2, C. B. Ward; Dept. 401, R. L. Fullmer, L. A. Gillett; Dept. 402-1, T. E. Hughes; Dept. 783-0, Francis Budz.

Fifteen-year: Dept. 143-3, R. H. Cunningham; Dept. 451-0, M. P. Walstrom; Dept. 480-0, D. G. Goodland; Dept. 522-2, John Norse; Dept. 573-0, Lorraine L. Welter; Dept. 771-0, Harley Hagwood; Dept. 782-0, L. H. Mabley; Dept. 831-1, Helen A. Mackes; Dept. 832-1, O. R. Linhardt.

Ten-year: Dept. 101-0, L. B. Albright; Dept. 140-0, Gladys K. Speed; Dept. 143-1, Rodrigo Vasquez; Dept. 154-1, P. A. Welburn; Dept. 194-0, F. S. Mascari; Dept. 223-1, R. D. Thompson; Dept. 250-5, C. E. Moon Jr.; Dept. 305-0, T. G. Fleming Jr., W. W. Johnson; Dept. 321-4, C. L. Pearson; Dept. 337, W. L. Stoffel, Lawrence Sweeting, J. J. Zagami; Dept. 343-3, D. E. Smith; Dept. 351-6, P. J. Daudenberger.

Dept. 403-1, W. E. Jacobs; Dept. 451-0, R. A. Lund; Dept. 453-0, J. T. Powell; Dept. 522-2, D. L. McClarren, R. E. Wilson; Dept. 561-2, L. S. Hansen; Dept. 756-0, R. H. Daniel, A. W. Torguson; Dept. 831-1, R. H. Bertram, Henrietta L. Ross; Dept. 833-3, M. P. Dull; Dept. 975-3, J. E. Ginn.

ALTUS AFB

Fifteen-year: Dept. 617-3, A. L. Brumley.

Ten-year: Dept. 617, Lois J. Dodd, Bill Heincy.

DYESS AFB

Fifteen-year: Dept. 618-4, W. T. Black.

Ten-year: Dept. 618-3, N. N. Lyter.

VANDENBERG AFB

Fifteen-year: Dept. 576-3, C. H. Towner.

Ten-year: Dept. 576-3, W. W. Mackey.

Promotions

MAIN PLANT

Promotions to or within supervision effective July 2.

Dept. 101, Data Processing: To data processing supervisor, B. W. Gurrad. To material control asst. supervisor, J. B. Peterman. To clerical asst. supervisor, C. Taliaferro.

Dept. 124, Communication: To photographic asst. supervisor, R. E. Williams. To photographic supervisor, L. E. Steadman, M. R. Ussery.

Dept. 141, Quality Control: To process control asst. supervisor, R. E. Dubel.

Dept. 143, Inspection: To inspection asst. supervisor, G. A. Knauss.

Dept. 333, Off-Site Logistics: To support logistics asst. supervisor, F. T. Zeglis Jr.

Dept. 335, Service Parts: To support logistics general supervisor, E. Kight Jr.

Dept. 538, Design Liaison Section: To design group engineer, W. R. Hall.

Dept. 581, Advanced Systems: To advanced systems group engineer, R. T. Sullins Jr.

Dept. 955, Centaur Program Control: To contract administrator, R. W. Frye.

EDWARDS RS

Dept. 975, Centaur Operations: To flight test group engineer, C. A. Notar.

PLATTSBURGH AFB

Dept. 620, GD/Astronautics Operations: To launch complex supervisor, G. H. Wilson.

WALKER AFB

Dept. 619, GD/Astronautics Operations: To cost control supervisor, G. A. Tatum.

Births

MAIN PLANT

GLASS—Son, John Scott, 7 lbs., 5½ oz., born June 19 to Mr. and Mrs. H. F. Glass, Dept. 250-1.

ZILLGITT—Daughter, Jana Kay, 7 lbs., 12 oz., born July 1 to Mr. and Mrs. Bruce Zillgitt, Dept. 549-3.

Deaths

MAIN PLANT

BARRETT—William F., Dept. 831-1. Died June 25. Survived by wife, Thelma.

MANDEKIC — Stanley, Dept. 564-4. Died June 30. Survived by wife, Mary.

PETZON—Arthur E., Dept. 301-1. Died July 4. Survived by wife, Charlotte.

VANDENBERG AFB

WATKINS—John Y., Dept. 576-3. Died July 3. Survived by mother, Ruth; brother, James.

Atlas Veterans Filling Key Positions in SLV

(Continued from Page 1)

ture of funds, schedules, and program performance including engineering, final assembly, check out and launch operations on all current and follow-on Atlas contracts in the space vehicle field.

"The timely and successful completion of contracted tasks is vital to the future of Astronautics," Dempsey said. "Therefore, the cooperation of all departments with the Space Launch Vehicle organization is expected."

Changes now being made are similar to those taken when the Centaur project line organization was created at Astronautics.

Basically, employees now engaged in SLV programs full-time will shift to the new departments being created.

Institutional support from such functions as communication, legal, industrial relations, contracts, etc., will continue to be provided by appropriate departments. Departments with facilities which support more than one project will also continue to serve as needed.

"Atlas is a first-stage launch vehicle with a known reliability developed over a number of years," Ames said. "To date, Series D Atlases have served as space launch vehicles for more than 25 Air Force and NASA space missions, including the two manned orbital flights for Project Mercury.

"Timely creation of this new organization is imperative, if we are to satisfy customer wants and at the same time be more responsive to customer attitudes now as well as in the development and production of new systems," he added.

Movie Slated At Hi-Fi Meet

The movie "Star Builders" will be shown at the meeting of ARA Hi-Fi/Music Club at 7:30 p.m., July 25 in the ARA Clubhouse.

Ben LaChance, ARA Commissioner, has announced that the club's full complement of high fidelity audio equipment has arrived, and electronic test equipment will be available shortly.

Club equipment includes a preamplifier, amplifiers (60 watts per channel), quarter- and half-track tape recorders, FM tuner with multiplex, precision turntable and separate automatic changer, and matched speaker sets for both monitor and concert purposes.

Volunteers are finishing the club's listening room and console cabinetry, with working parties held from 8 a.m. to noon, and noon to 4 p.m., Saturdays. Some cabinet work is also done during evening hours.

"Those who wish to assist with the work may contact Vic Salazar or Bob Ross at ext. 873," LaChance said. "Astro employees may obtain additional information about the club by calling me at ext. 2324."

Newly elected Hi-Fi/Music Club officers are Reini Braun, president; Bill Brown, vice president; and Valerie Knettle, secretary.

Personals

VANDENBERG AFB

My sincere appreciation for the many kindnesses shown my mother and me following the death of my father, Raymond Cook.

Joy Cook.

MISSILE SAFETY CONFERENCE HELD

Seven representatives from General Dynamics/Astronautics were on hand last month for the 50th Air Force-Industry Conference on "Missile Electrical—Mechanical Safety Problems" held at Riverside, Calif.

Under sponsorship of the Directorate of Missile Safety, Deputy Inspector General for Safety, USAF, the affair drew representatives from all aerospace industries.

Astro's representatives were J. W. Garrison, Jarrett Friend, Richard Milligan, Dean Short, J. W. Harr, F. P. Iannolo and Henry Pallulat.

Garrison Authors Safety Pamphlet

J. W. Garrison, GD/Astro's chief safety engineer, was a contributing author to a recently distributed Missile Safety Officer's kit packet prepared by the Directorate of Missile Safety, USAF.

Garrison's contribution was a pamphlet titled "Success is Just a Micron Away." It dealt with GD/Astro's attention to cleanliness in missile parts. It was the third time Garrison has contributed material for the kit.

Charger Tickets To Be Sold Here

Twenty-eight season tickets to San Diego Charger professional football games are now available through employee services, Bldg. 8, at General Dynamics/Astronautics.

The seats are located on the west (shady) side of the stadium about the 10-yard line. They are in the upper deck, rows 10 and 11, Section 6.

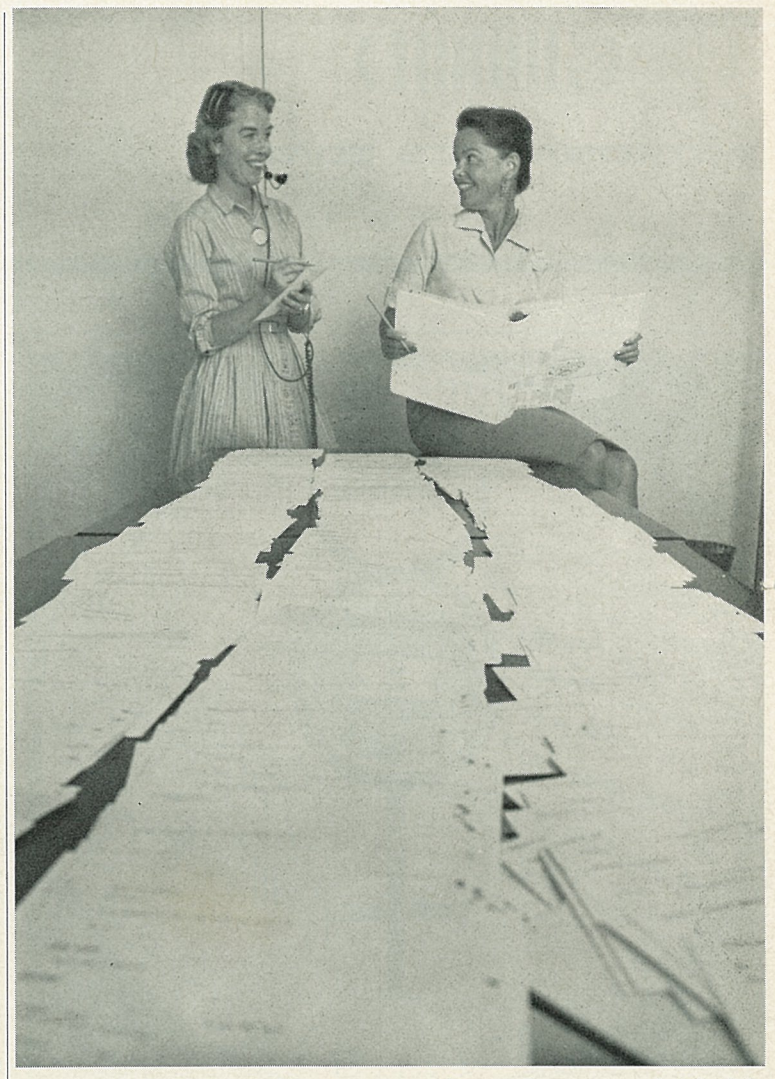
Individual seats are $35 for seven league games only or $50 for the entire season, the regular price.

Dance Series Open To Single Adults

Another in ARA Singles Club's continuing series of dances open to all single adult GD/Astro employees will begin at 9 p.m., July 20 in ARA Recreation Area.

Planned are dancing to live music, and refreshments. Admission is 50 cents, upon presentation of GD/Astro identification card.

On July 21 the group will sponsor a beach party at Mission Bay beginning at 4 p.m. Details on this event will be announced at the dance the previous evening.



ALL ANSWERS—INFO operators Betty Gossett and Virginia Orpin display some of 3,000 subject cards now on file in Astro information center. Center, ext. 4636, will help provide answers to questions on any work-related subject.

Detective Work

Info Center Draws Some 'Lulus' When it Comes to Questions

(Continued from Page 1)

ators refer when a question is received.

Often the card contains the answer. If not, it frequently lists an information source. If there's no card, operators will research and document the question.

"The case of the misguided telegram is an example of our operation," said Virginia. "A priority message to 'Jim Fair' was received, but no Astro employee with that name was concerned with its subject.

"Betty started thinking of names with a similar sound, and we soon located a Mr. Sayre who was anxiously awaiting the wire."

Another INFO question involved locating a large quartz lens needed by an engineering group.

This time a call to General Dynamics/Convair revealed such a lens had been produced at that division a few years earlier. More detective work located the lens—in storage in another GD/Astro department.

Other questions are routine. Employees need a list of addresses for General Dynamics divisions; or the name of GD/Astro's resident office manager at Dayton, Ohio.

"Employees are encouraged to use INFO at any time," said Vern Heger, internal communication project administrator. "INFO will either answer the question or locate someone who can.

"And each question means better service next time," he added. "The facts—or the source—are listed in the card file.

"Groups with special information are urged to contact INFO so they can be listed as a source of facts and figures in their specialty," Heger concluded.

Utility of the information concept is being widely recognized within the aerospace field. National Aeronautics and Space Administration (NASA) recently established a center at its Washington, D.C., headquarters.

DRIVERS REWARDED FOR SAFETY RECORD

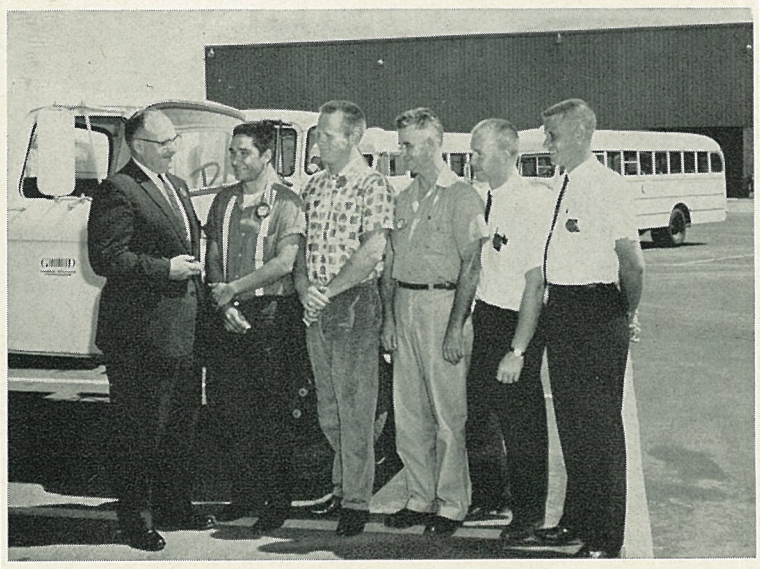
Over 150,000 accident-free miles were rewarded last month when three transportation (Dept. 250-5) truck drivers received safe driving awards at General Dynamics/Astronautics.

W. J. Stanley, plant engineering manager, presented a five-year award to E. C. Graham, and two-year pins to George Barragan and Willard Smith.

Strict regulations governing awards limit vehicle operators receiving them to a select few. An "accident" is defined as any situation involving a company vehicle which results in personal injury, vehicle damage, or damage to property or material.

Citation for moving traffic law violations is automatically disqualifying.

Operators of GD/Astro's fleet of trucks average 1,540 miles per month on the road.



CRASH-FREE—W. J. Stanley, plant engineering manager, presents safe driving awards to George Barragan, Willard Smith and E. C. Graham, as W. C. Stubbs and C. E. Adams, asst. foremen, look on.

August Dates Set For Golf Tourney

Entries for ARA's fifth annual golf championship Aug. 11-12, Aug. 18-19, at Fletcher Hills will be accepted through 1 p.m. Aug. 1, at Astro employee services, Bldg. 8.

Entrants must have established an ARA handicap or submit five score cards prior to entry deadline. Entry fee is 50 cents with players paying their own greens fees.

General Dynamics NEWS

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Community Education Program Helps Quiet Sonic Boom Fears

"A jet broke the sound barrier in the Milwaukee area during early morning hours . . . and touched off a flurry of phone calls by frightened residents who thought the area was under attack."

This lead from a story in the Wisconsin State Journal was perhaps typical of headlines caused by SAC's new Mach 2 bomber, the B-58 Hustler, in 1958.

Three years later, "surprisingly few complaints" were registered as FAA and NASA used a B-58 in secret tests to determine boom effects over major populated areas.

And even fewer complaints are now called in by citizens living in B-58-corridor towns, where Hustlers make Mach 2 sorties against Air Force Radar Bombing Sites. For the most part, they've accepted sonic booms as the "sound of freedom."

At least partially responsible for the wide public acceptance is a massive three-year sonic boom education program, carried out by SAC and GD/Fort Worth. Civic and professional leaders from communities throughout B-58 corridors were called together and told all about booms—what caused them and why they had to be run over certain cities.

Result: widespread press and television coverage, which eventually braced people for booms and stripped away the devastating "surprise" element.

In the briefings, Air Force officers carefully pointed out that combat B-58s normally make supersonic sorties at altitudes from 35,000 to 50,000 feet, and in 30-mile wide corridors 300 to 350 miles long. Target cities have included Little Rock, Joplin, San Antonio, Austin, Amarillo, Atlanta, Milwaukee, Laurel (Miss.), Matagorda Island (off the Texas coast), Omaha, Lincoln, St. Louis, and the Minneapolis-St. Paul area.

"The next war, if there is one, will be supersonic. If our airmen are to fight supersonically, they'll have to train by flying supersonically on simulated combat missions," said Loyd Turner, who with his staff member, Mal Halloway, represents GD/Fort Worth at the briefings.

"Most supersonic missions below 35,000 feet are made in a special 20-mile wide corridor over the Gulf of Mexico," Turner explains. "The only harmful effect might be to give a few fishermen a bigger bang out of the sport than they expected."

A "tremendous assist" in telling the sonic boom story is "Tall Man Five-Five," a documentary film narrated by Chet Huntley. The film explains sonic booms as a Hustler moves in for a Mach 2 attack on Deerfield, Mass. General Dynamics made the film, with assistance of the Air Force and General Electric.

Literally millions of people have seen the film on SAC bases, in special showings throughout B-58 corridor cities and towns, and on television.

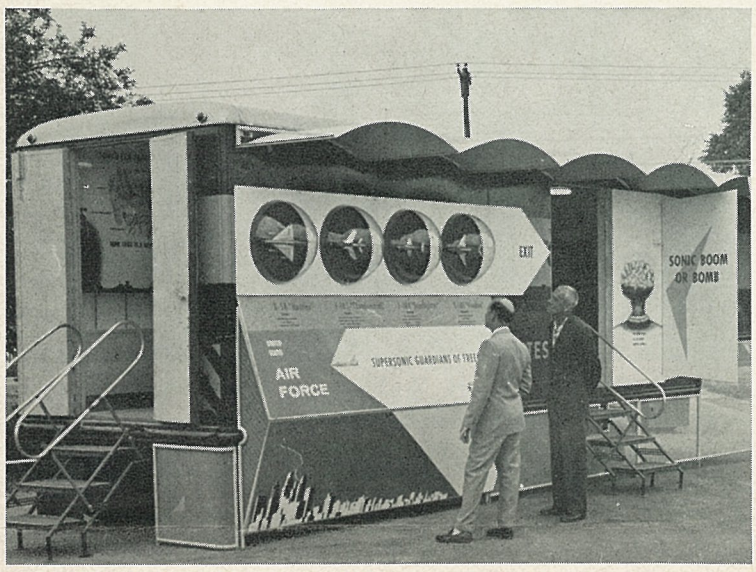
Lending mobile assistance to the sonic boom orientation program was an Air Force van which toured 15 communities in the corridor areas. It used illustrations, charts, brochures and recorded statements to give the cause and effects of booms.

In the briefings, Air Force claims officers stress that a sonic boom cannot cause structural damage to a house or building or injure a person because of the altitudes at which B-58s fly.

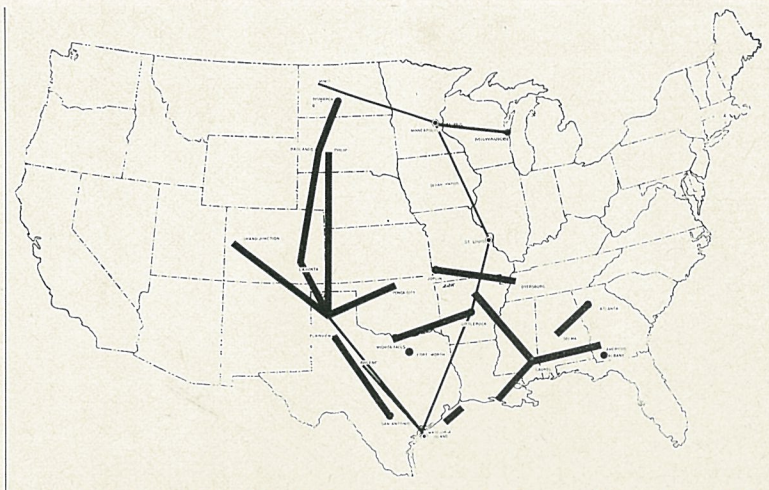
They explain that it takes overpressures of at least 70 pounds per square foot to cause structural damage. Pressure from a sonic boom under normal SAC operations is less than five pounds per square foot. The only way scientists have been able to generate pressures of more than 70 pounds per square foot was under the severest of test conditions, with an aircraft speeding by only 200 feet above a recording device on the ground.

Damage to some plate and window glass, light bric-a-brac, or loosely latched doors, plus some possible aggravation to existing plaster cracks, is about the extent of sonic boom damage, officers explain. Structural damage to foundations or load-bearing walls, they say, is practically impossible.

Easily discredited are claims like these: a man who said a sonic boom caused an earthquake that cracked his swimming pool; a woman who said six of her electrical appliances (eight years old) were ruined; another woman who claimed that she was criminally assaulted by an intruder who allegedly entered a door jarred open by a boom; and the one that booms caused chickens not to lay eggs and eggs not to hatch.



PORTABLE STORY-TELLER—Air Force van with illustrations and recordings which told sonic-boom story, toured number of B-58 corridor towns.



BOOM TOWNS—Black lines indicate B-58 corridors, in which Hustlers make supersonic sorties. Hundreds of civic leaders in various corridors were briefed on booms by GD/Fort Worth and Air Force teams.

Paddled by Mistake Due to Sonic Boom, Boy Earns Apology From Hustler Crew

The story ended happily, but for awhile it appeared that 10-year-old Harry Erickson of near Pittsburgh, Pa., had taken a real beating from sonic booms.

It happened, according to Jim Lucas of Scripps-Howard, when a B-58 Hustler made its record-making, round-trip flight from Los Angeles to New York run, leaving a trail of sonic booms in its wake.

It seems that Harry's father, Herbert Erickson, had forbidden the boy to leap from his bunk and bang his feet on the floor.

When the fast-flying Hustler passed nearly directly over the Erickson household, it left not one, but two distinct booms.

Interpreting the booms as another leap from the bunk, Harry's father paddled the boy, under protest of course.

But when the father learned the true cause of the booms, he quickly penned a note to the Pentagon that someone owed his boy an apology.

The Bendix-Trophy winning B-58 crew — Capts. Robert Sowers, Robert McDonald and John Walton—thought so too.

They wrote Harry a formal apology, enclosing an autographed picture and a B-58 model.

"We had excellent tailwinds all the way," the crew wrote. "We hear you did, too, and we're sorry about that."

NASA Chooses GD/Astronautics to Study Early Manned Planetary Explorations

General Dynamics/Astronautics is one of three firms selected by the National Aeronautics and Space Administration (NASA) to carry out studies of early manned planetary exploration.

Known informally as Empire (early manned planetary-interplanetary round-trip experiments), the studies will last six months. Astronautics will conduct studies of a Mars orbiting mission.

This does not mean that NASA has scheduled manned planetary flights, but is gathering a body of preliminary information for use if and when such a project is established, a release from Marshall Space Flight Center, Huntsville, Ala., indicated.

Studies assume a launch time of the early 1970s and the use of Saturn C-5 and/or Nova launch vehicles employing orbital operations and nuclear propulsion from earth orbit.

Under study are trajectory, weights and conceptual design, propulsion requirements, storage methods for hydrogen in space, life support systems, schedules, long leadtime requirements and funding.

Little League Help Comes Back Double

GD/Astronautics' Steve Losch (Dept. 305-0) boasts of the luck most of us would like to have—he bought three raffle tickets and won first and second prize!

Losch merely wanted to help the Spring Valley Little League raise funds when he purchased the tickets. A drawing held July 4 ended with him winning first prize (a Falcon automobile) and also second prize (an ice chest). Losch promptly returned the second prize.

Construction Proceeds On First Commercial Atomic Power Facility

Construction of the world's first nuclear power station, prototype of the High Temperature Gas-Cooled Power Reactor system conceived and developed by General Atomic Division, General Dynamics, is progressing rapidly at Peach Bottom, Pa.

It is designed to produce commercial electric power at high temperature steam conditions.

At the 600-acre plant site on the Susquehanna River, Philadelphia Electric Co., which will own and operate the 40,000-kilowatt (electrical) plant, reported site clearing, excavation and grading are virtually completed and the lower shell of the steel containment vessel already is in place.

Peach Bottom will be the first nuclear station to produce commercial electric power at modern steam conditions of 1,000-degree F. temperature and 1,450 pounds pressure.

The Peach Bottom plant also will be the first commercial nuclear power station to demonstrate the use of an all-graphite core and a peak fuel burn-up of 75,000 megawatt days per metric ton of uranium and thorium fuel.

The $24.5-million developmental construction cost of the plant is being borne by Philadelphia Electric and 52 other investor-owned electric power companies located throughout the United States and organized as High Temperature Reactor Development Associates, Inc. The 53 companies comprise the largest group of companies to support a U. S. nuclear power project.

Construction at the Peach Bottom site began late in February under a 27-month construction schedule calling for completion of the plant in mid-1964. The site is nine miles above Philadelphia Electric's hydroelectric station at Conowinge, Md.

The lower shell of the plant's circular steel containment vessel, which will enclose the HTGR reactor and nuclear steam supply system, is in place in the ground and workmen are now erecting a reinforced concrete wall which will separate the containment vessel from the plant's turbine building.

The steel containment vessel, 100 feet in diameter, will rise 135 feet above the ground when completed. The upper part of the vessel will not be erected until the reactor, steam generators and other interior equipment have been installed.

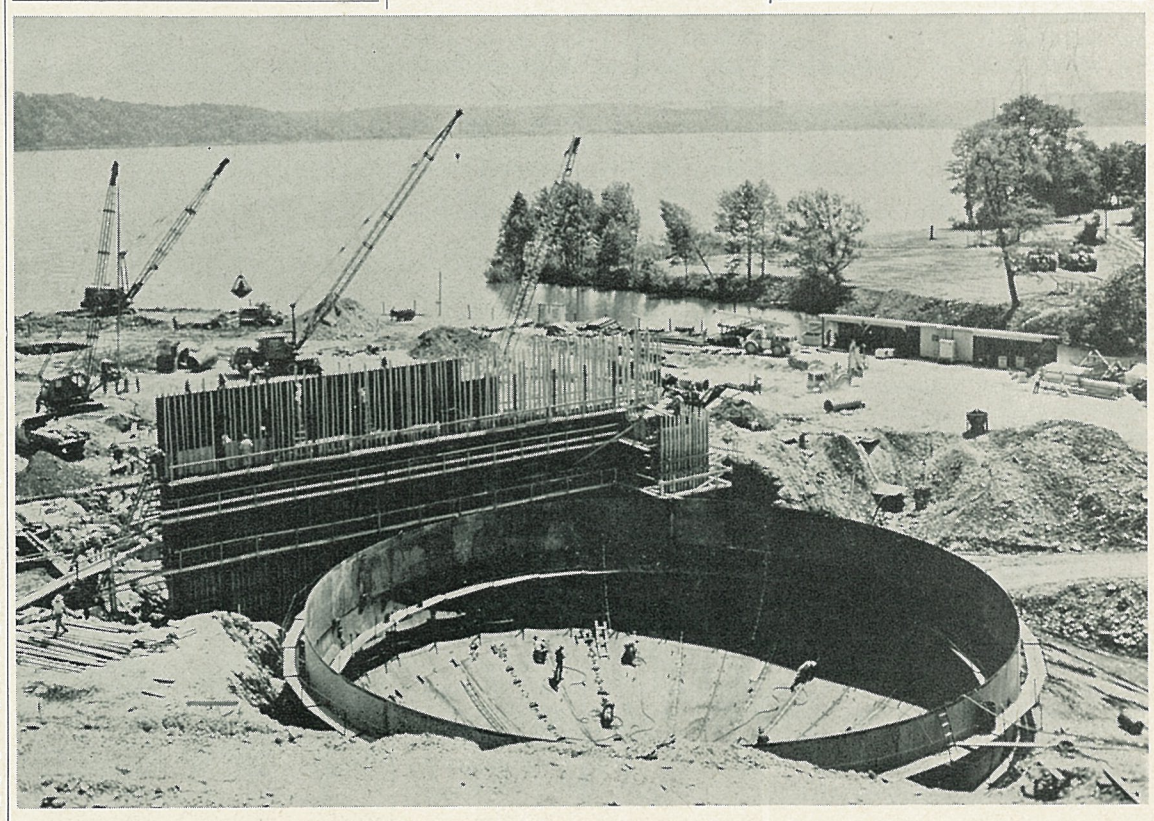
General Atomic is responsible for the nuclear plant. Bechtel Corporation is engineer-constructor.

SAFETY PRACTICES AT GD/ASTRO TOLD

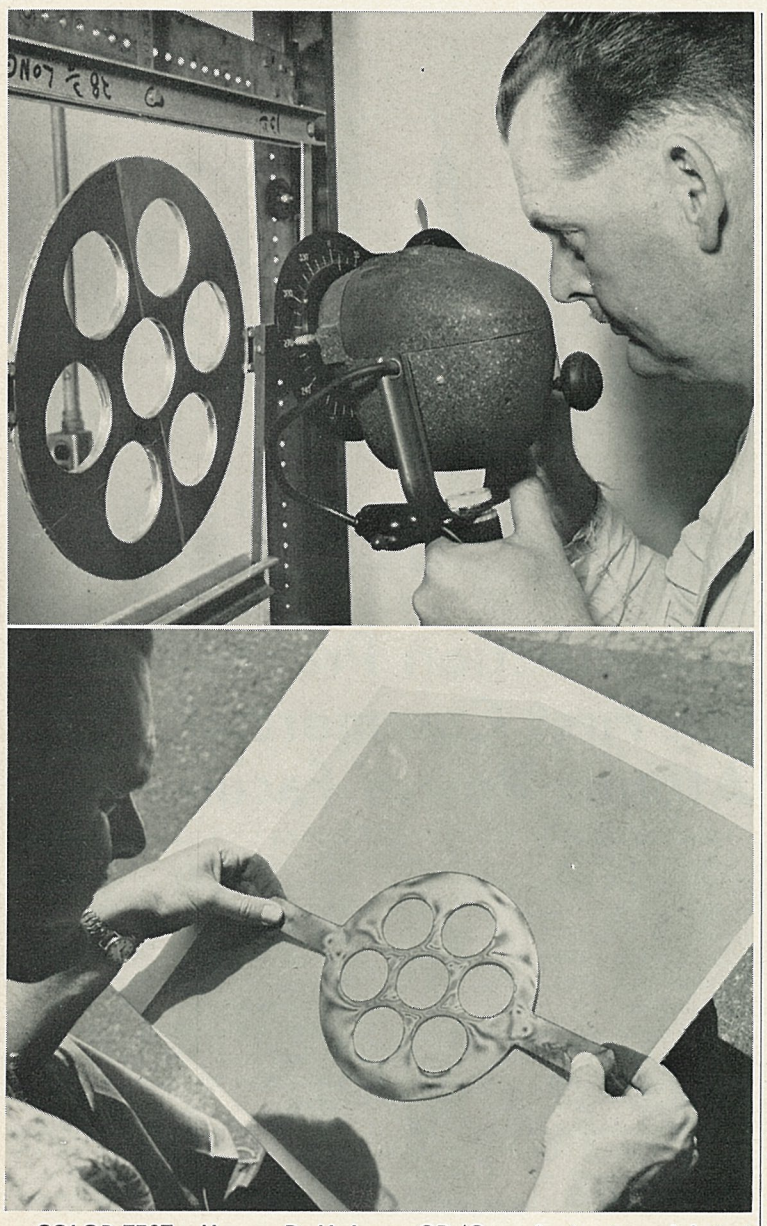
Mortimer Rosenbaum, General Dynamics/Astronautics executive vice president, presented a special talk on safety practices at Astronautics June 27 at a meeting called by the commander of the Ballistic Missile Division.

The one-day affair, held at BSD Headquarters, Inglewood, dealt with safety programs and practices developed by major aerospace industries involved in ballistic missile work for the Air Force. Other top industry officials gave similar reports.

In addition to Rosenbaum, Astronautics was represented by P. M. Prophett, director of base activation, all of Astro's operational base operations managers and J. W. Garrison, chief safety engineer. SATAF commanders from all ballistic missile bases also took part.



WORLD'S FIRST—On banks of Susquehanna River, construction of world's first atomic power station proceeds. Circular containment vessel, 135 feet high, will enclose HTGR reactor and nuclear steam supply system developed by General Atomic Division of General Dynamics.



COLOR TEST—Upper, D. H. Love, GD/Convair structures lab test engineer, peers through photostress meter at 1/10th scale model of Little Joe II bulkhead to measure stress by colors appearing under load. In lower shot, Love bends plastic model to make stress patterns clearly visible through sheet of polaroid.

Midget Little Joe II Bulkhead Put Under 'Rainbow' Stress

Rainbow colors are helping General Dynamics/Convair engineers determine points of stress in components that will go to make up Little Joe II launch vehicles, now under development at GD/Convair.

The miniature aluminum bulkhead, 1/10th scale, is in photostress testing at the GD/Convair fatigue test lab to pinpoint critical high stress points by use of the color process.

As the model, coated with a thin layer of special plastic, is twisted under bending loads, patterns form—either light and dark, or in various colors—indicating strain areas. The colors, when viewed through a photostress meter, are graphed according to known principles of polarized light to measure stress.

"This method of determining critical areas of stress allows us to simulate stiffness and configuration of a component without building an actual part," said Ed Schiff, structures lab assistant group engineer.

"It provides a quick and accurate method of analysis in terms of strain and load for use by design engineers."

A smaller 1/20th scale flat plastic pattern of the bulkhead's surface shape is used as a general demonstration model with colors indicating "fringes," or patterns of stress, clearly visible through a sheet of polaroid.

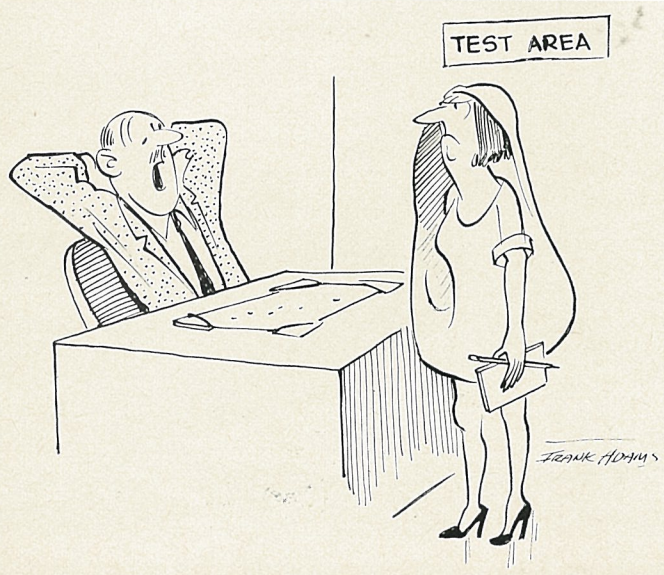
The same testing method has been in use at GD/Fort Worth and GD/Astro the last few years and was applied during fatigue testing of landing gears and skins for Convair's jet transports.

F-102 Landing Gears Face Fatigue Tests

Structures laboratory at General Dynamics/Convair will be cycling F-102 landing gears during the next few weeks to check Air Force required changes.

Under a recent contract from the AF, amounting to $12,651, GD/Convair will fatigue test two of the modified main landing gears destined for installation on Convair-built F-102s in the field.

The program, extending over a couple of months, will fatigue test the gears to failure or 20,000 cycles. Gears, built by Menasco Mfg. Co., Burbank, Calif., were due to arrive at the San Diego laboratory facility the middle of this month.



"Another thing, Miss Christy . . . Let me know immediately the next time that wind tunnel crew starts giving you a rough time!"

GD/Astro Engineering Writer Owns U.S.'s Only (?) Coffee Plantation

A borrowed dream, his wife's encouragement, and an eye for the unusual have combined to make Harold V. Stickel of General Dynamics/Astronautics, owner and operator of what is probably the only U.S. coffee "plantation."

Stickel, an engineering writer in support systems engineering (Dept. 321-2) at Plant 1, has 200 young adult coffee trees and over 5,000 seedlings growing on his hillside property in La Mesa, Calif.

This year's coffee bean output will go for seed, and next year Stickel hopes to place his coffee on the commercial market.

Stickel bought his "plantation" from the estate of the late Nick Wornin, horticulturist and former El Salvador plantation owner, who for ten years dreamed of introducing coffee culture to the United States.

Wornin brought seed stock from his El Salvador plantation and had attempted to raise it in Florida and later in another part of California before succeeding in the La Mesa location.

Upon the death of his friend, Stickel determined to carry on Wornin's dream and purchased the property. His wife, Marie (former GD/Convair Dept. 120 employee) was raised on a coffee plantation still owned by her family in central Mexico, and encouraged the undertaking.

Present producing stock flourishes beneath the high shade of chirimoya trees (a South American tree in itself unusual in this country) on a terraced hillside behind the Stickel home. The three-year-old coffee trees are now about five feet tall and will never grow so high that harvesting cannot be done from the ground.

Coffee berries, each containing two beans, look like dark red cherries and stud the branches in clusters. Berries are picked when ripe, dried in the sun and husked. The beans are then roasted and ground en route to the coffee pot.

Coffee-wise Marie recalled customs of her youth, remarking that plantation owners seldom brew coffee from pure coffee beans.

"My mother often grinds a bit of cinnamon or cocoa with the coffee beans," she said. "Either adds to the flavor."

Of the seedling trees, with which he hopes to expand his coffee growing operation, Stickel has a wealth of information.

"Their culture gave Wornin his greatest headaches," he recalled. "Each bean must be carefully positioned to permit sprouting and planted in an exacting combination of moisture, well conditioned soil and fertilizer.

"Then climate for early growth becomes the critical factor. Wornin chose La Mesa because of its even year-round temperature and similarity to the climate of El Salvador."

And the curious flora of "El Rancho Stickel" surpasses the unique planting of coffee and chirimoya trees (whose fruit, Stickel said, tastes like vanilla ice cream). Marie pointed out miniature banana trees whose fruit is of normal size with unusual sweetness, and several sturdy papaya trees.

"It's quite a place," Stickel chuckled proudly. "Now you take those three pineapple plants over there . . . "

CROP—Mr. and Mrs. H. V. Stickel of GD/Astro examine one of 200 young coffee trees on property in La Mesa, Calif. Coffee fruit looks like dark red cherries, each containing two beans which are dried, roasted, then ground.

GD/E Awarded Battlefield Radar Study

A $100,000 study contract has been awarded General Dynamics/Electronics at San Diego by the U. S. Army Signal Corps at Fort Monmouth, N. J.

During the study, to extend over the next year at least, GD/Electronics engineers will research in development of new techniques for effective employment of radar in battlefield situation.

Project engineer in charge of the studies will be David Proctor of GD/E advanced microwave group, said D. Wahl, GD/E manager of engineering.

The contract was awarded GD/Electronics as an outgrowth of the division's previous studies into developing high resolution techniques for surface radar systems.

Keith Benson Talks For UCLA Seminar

Keith Benson, group engineer at General Dynamics/Pomona, was one of five Southern California engineers invited to address a recent seminar at UCLA.

The seminar, sponsored by the UCLA school of engineering, involved "Information Display Systems." Benson spoke on "System Engineering Methods and Procedures."

"It's All in Books"

Self-Taught Math Instructor Looks Back on 1,200 Students

E. B. Schick, GD/FW Dept. 24-2, is "retiring" this month into a long-postponed second career as school teacher.

The "self-educated" tool designer, a GD/Fort Worth employee since 1945, plans to teach shop math through the vocational program at Technical Institute.

It won't be a new role for Schick, as well over 1,200 present and former GD/Fort Worth employees can testify.

"He's taught this course—involving plain geometry and trigonometry as it relates to designing engineering parts—to at least this many people since he was first 'drafted' for the job in 1948," a former supervisor said.

"He was selected because everyone—his fellow employees, supervision, and engineering—respected his knowledge of math as it related to tool designing."

He was such a good instructor, the supervisor pointed out, that he's had to teach the same course off and on ever since.

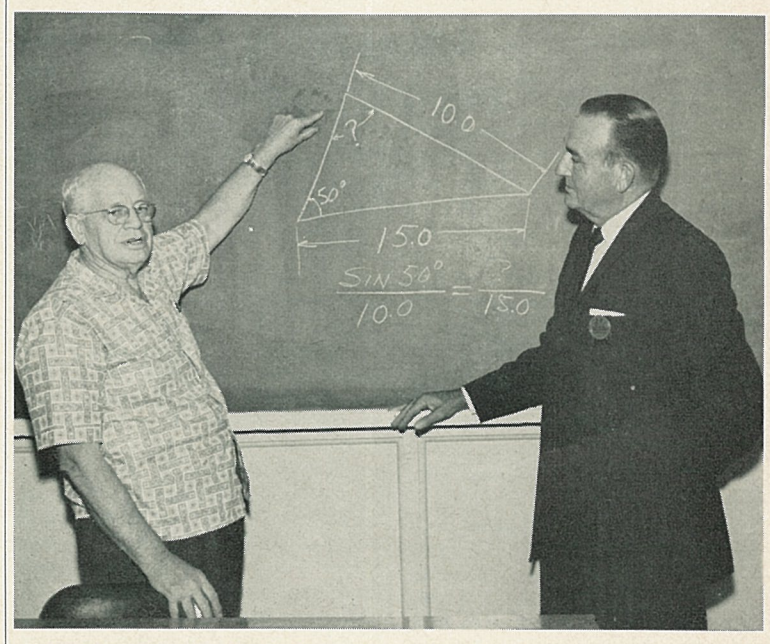
The self-taught Schick is, in a sense, resuming a profession he started in 1915.

"I taught in a little rural school in Georgia," he said. "This included grades one through 11. I also did a little teaching in Tennessee."

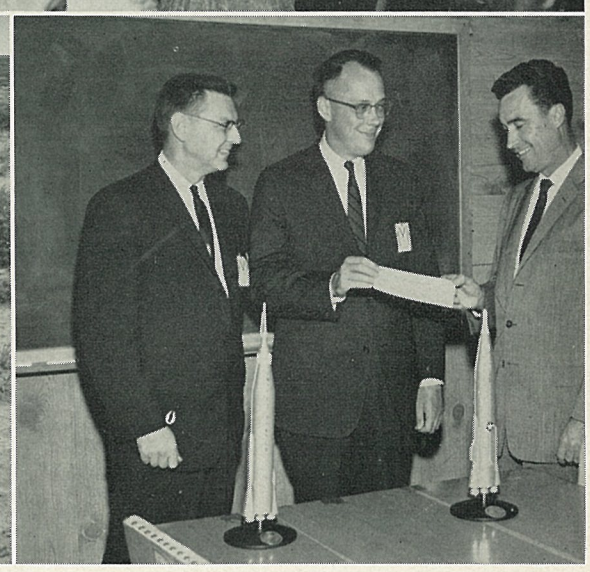
Schick was hasty to add that education in rural areas in those days was a pretty informal affair.

How does a self-taught man like Schick—who talks like a college graduate—acquire his knowledge?

"It's all in books," he said. "All you have to do is read."



SELF-MADE—E. B. Schick, Dept. 24-2, displays teaching technique—familiar to over 1,200 GD/FW employees—to F. E. Chambers, GD/FW director of industrial relations. Schick plans "second" career of teaching when he retires this month.



ROUNDING THE BASES—Party arranged by GD/Astro Wives Club of Lincoln AFB drew happy throng of 1,000 to Plamor Ballroom in Lincoln, Neb. In top center, Irene Peters, June Strous and Phyllis Walsh engage in skit on feminine view of Atlas base activation. At top left Robert McGraw collects grand prize of tape recorder. Behind him are members of dance committee, Miriam Lundy, Betty Grundstrom and Ernie Mudge, with emcee Bob Verdon at mike. Lower left: J. N. McPheeters, GD/Astro operations manager at Altus AFB, in "native" costume, drops by for chat with Bob Longino, supervisor at Atlas Site 2. Lower center: amateur archaeologists have field day in Walker AFB area where Indian relics abound. John Taylor (Dept. 619-5), wife, Lois, and children, Mark, 7, and Tanja, 10, do some digging. Lower right: L. I. Medlock, right, GD/Astro operations manager at Lincoln AFB, presents $4,280 check from Con-Trib-Club to Willis Johnson, Lincoln Community Chest, and J. C. Angle, United Appeal drive chairman. Astro employees, through Con-Trib, have donated nearly $30,000 in Lincoln-Omaha area during three years of base activation operations. Con-Trib donations at Nebraska base have approached the $10,000-mark during this year alone.

BSD Commander Award Goes to Technician Who Prevented Atlas Loss

LINCOLN AFB — Richard A. Seibert, a General Dynamics/Astronautics technician here, has been awarded the Ballistic Systems Division Commander's Award by order of the commanding general.

The award, a special commendation, recognizes distinguished service performed by Seibert during operations here. It read, in part: "Seibert evaluated an impending emergency in a unique manner and reacted with such swift action that he prevented certain destruction of an Air Force Atlas missile and probable injuries to five fellow employees.

Lt. Col. Hubert E. Miller, deputy SATAF commander here, presented the award on behalf of Maj. Gen. Thomas P. Gerrity, then BSD commander.

The event mentioned ocurred at Offutt AFB when Astro personnel were conducting operations on Atlas complexes there.

General Gerrity's statement added that "Through outstanding judgment and action Mr. Seibert has brought credit upon himself, his company, and the United States Air Force."

Wives 'Splash Party' Held at Schilling

SCHILLING AFB—Straw hats and colorful bathing suits were the costume for 35 members of GD/Astro Wives Club here at a recent "splash party" at the base Officers Club pool.

Light refreshments were served.

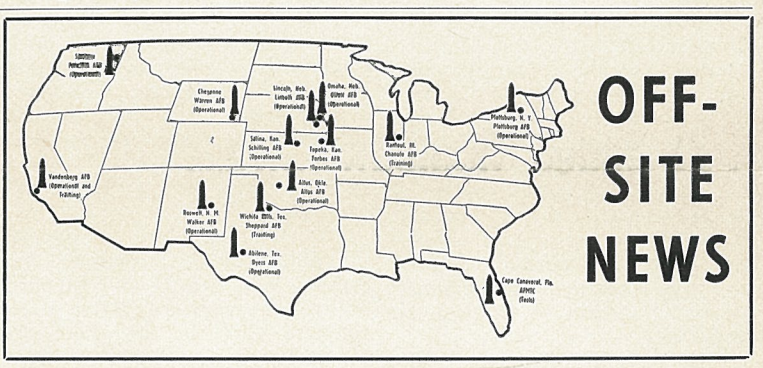
WIFE'S-EYE VIEW OF BASES LIVENS LINCOLN PARTY

LINCOLN AFB—A wife's-eye view of Atlas base activation was featured in skits by Astro Wives Club as intermission entertainment for over 1,000 GD/Astronautics employees attending a company dance here last month.

The event was held in Plamor Ballroom, Lincoln, under joint sponsorship of the Wives Club and GD/Astro supervision, with a Sunday night date enabling both first and second shift employees to attend.

Dancing throughout the evening was climaxed by drawings for a variety of door prizes, with Robert McGraw of support publications winning grand prize of a tape recorder.

Bob Verdon, communication administrator, was master of ceremonies.



OFF-SITE NEWS

AFMTC—R. E. Flanagan, ext. 4011.
ALTUS—Jean Foster, ext. 669.
DYESS—G. D. Higgins III, ext. 8370.
EDWARDS RS—Chris Marques, ext. 27.
LINCOLN—Maxine Utley, ext. 412.
PLATTSBURGH—Elly FitzPatrick, ext. 6281.
SCHILLING—Laine Browne, ext. 213.
SHEPPARD—Steve Delbridge, ext. 8243.
VANDENBERG—Lucy Signorelli, ext. 8-5046.
WALKER—Rod Bricker, ext. 603.

ADDED EFFORT—Lt. Col. Hubert E. Miller, deputy SATAF commander at Lincoln AFB, presents Commander's Award to Astro's Richard A. Seibert. Seibert was cited for quick action that prevented loss of Atlas missile and possible injury to fellow employees during Offutt AFB operations. In light colored coat is Don Hamm, chief of product support. Others are fellow employees at Lincoln AFB.

Tommie Zannes Memory Occasions Cancer Gift

VANDENBERG AFB—General Dynamics/Astronautics employees here, through action of their Con-Trib-Club, have created a memorial to a former boss and fellow employee—Tommie Zannes.

Last month $10,000 was presented to the American Cancer Society as a "Tommie Zannes Memorial Gift." It was the largest gift ever made to the Society in Santa Barbara County and represented an average contribution of $7 per Astro employee here.

Zannes died three months ago of cancer.

Robert Hughes, missile electronics technician and Con-Trib-Club Committee member, presented the gift to Peter Bakewell, campaign chairman responsible for Santa Maria and Lompoc.

"We offer this gift in the name of Tommie Zannes out of affection for our former boss, a man of real humility and compassion, and a truly great American," Hughes said.

A two and one-half minute film, produced by Tom Jaqua in cooperation with Con-Trib-Club and the Astronautics motion picture section, was shown locally on television outlets.

It traced Zannes' career, covering his work as test conductor (at Cape Canaveral) on the first successful Atlas missile launch and subsequent successes. It also showed him as manager of Astronautics operations here, his last post before being stricken with lung and brain cancer in 1961.

One statement, made by a former associate, summed up the feelings here for Zannes: "Tommie Zannes was popular for many reasons. One was his overt patriotism. He worked first for his country, secondly for Astronautics, and lastly for himself."

★ ★ ★

LINCOLN AFB—Appreciation for this area's hospitality during Atlas base activation operations has been shown by General Dynamics/Astronautics personnel through their Employees' Con-Trib-Club.

Over three years' time, Con-Trib-Club has disbursed nearly $30,000 to United Appeal and other charitable organizations in the Lincoln and Omaha areas.

This year's gifts total $9,000.

CHAMP TEAM—Support Documentation volleyballers line up with trophies after capturing IRC title with three straight wins over Spacemen in play-off. Snapped at award night barbecue in Pecan Park are (standing), from left, Ray Mendoza of ARA, Tony Heintz, Bob Mallgren, Jim Simley; (seated) Pete Beyrer, CRA commissioner, Reno Bernardini, George Vogt, Bill Creamer. All are from Astro Dept. 337 except Creamer of GD/Electronics.

Dynamics Teams Win Trapshoot and Skeet

General Dynamics sharpshooters captured the lion's share of awards at the annual Industrial Recreation Council Gun Shoot July 1, winning two of three events.

Nearly 150 people including 68 participants at Gillespie Field Range saw GD teams win both the skeet and trapshoot events while Rohr swept the rifle match. Commissioners Jack Swank and Ezra Johnson of host CRA-ARA Gun Clubs termed the affair "highly successful."

GD's team of Jim Field, Ken Wulfemeyer, C. W. Pharis of GD/Convair, Jim Hartman, GD/Astro, and W. E. Rickman of Prophet Co., shot 221 out of a possible 250 to edge SD Gas Co. with 217 in skeet. Both teams collected individual trophies. Third place went to GD/Astro Management Club team shooting 200. Rohr followed with 163.

Trapshoot honors and the perpetual team trophy went to a GD team including George Anderson and Warner Gatterman of GD/Astro, Howard Jacklin of GD/Electronics, Jay Cushman and Jack Rogers, GD/Convair, winning easily with a 235 score. GD/Astro Management Club and another combined GD team tied for second place with identical scores of 211, nosing out Aetna Insurance at 210.

The GD combine of George Clayton, Eldon Carpenter, Joe Butera, Ken Beadle and Edward Sullivan, overpowered Astro Management Club in the shoot-off, 111 to 102, to earn individual trophies. Third place trophies went to Astro Management Club's Blas Vargas, Roy Cunningham, Ezra Johnson, Jerry Schultz and Jim Hartman.

Highlight of the day was the Gatterman family performance. Warner shot 49 out of 50 to tie George Clayton for men's honors while his wife, Edna, shooting for Aetna Insurance, triumphed over the ladies with 44 hits in 50 tries.

Mexico Tour Now Forming

Prospective tourists from GD/Convair, GD/Astro, and GD/Electronics, and their families, may put their names on the list now for a two-week trip by train and bus into the interior of Mexico.

The tour, arranged especially for General Dynamics people, is slated for the last two weeks in August. It comes as conclusion of the current "tourist" Spanish language course now being taught by Jim Hardison of GD/Convair Dept. 15-0.

However, Hardison said that anyone in San Diego facilities may join the tour, regardless of whether they were enrolled in the language course.

Package price will be $350 a person, if 30 or more sign. Departure date is Aug. 17 from Mexicali. Pullman accommodations will be arranged, with air conditioning, and catering for two meals.

An overnight stop will be made Sunday at Guadalajara, with the group entraining Monday evening for Mexico City. After seeing the sights in and around the capital city, the tourists will go by bus to Acapulco and return. The trip will wind up with a visit to Puebla, industrial center and site of glass and pottery making.

Return date at Mexicali will be Sept. 2.

Anyone interested may reach Hardison at his home phone, BR-6-5805, after 7 p.m.

Salvage Yard Dates In July, August Set

Employee sales days at GD/Convair and GD/Astro salvage yards for the next four weeks are:

GD/Convair—July 21, Aug. 4.

GD/Astro—July 28, Aug. 11.

Yards are open at both Plant 1 and Kearny Mesa sites on an alternating Saturday schedule, 8 a.m. until noon.

PLAYBOYS!—CRA cameramen surround "Miss Photorama" (Fran Rooks) in Convair club's prize-winning set, simulating Playboy Magazine cover, at recent Balboa Park contest. From left are Ron Ainsworth, Whitey Claxton, Howard Harvey, Leo Vigneault.—Photo by Les Blakely, Astro Lens.

Sailplaners Open Summer Soar Season

A clear, warm day greeted San Diego sailplane pilots as they traveled to Elsinore to lift off the summer soaring season with a two-day meet at Skylark Field June 30-July 1.

"Weather conditions provided lots of thermals to 5,000 and 6,000 feet above sea level to make for good gliding," said Gene Whigham, CRA Glider Club commissioner, whose group, in its affiliation with the Associated Glider Clubs of Southern California, sponsored the event.

Whigham was in the money both days, taking a second place in Saturday and Sunday tasks. Saturday's chore was to complete as many circuits as possible around a triangular 57-mile course starting at Elsinore with turn points at Jack Rabbit Pass and the Ramona Bowl. Time limit was three hours—from 1 to 4 p.m.

Flying his original design home-built sailplane, Whigham glided to earth when he lost his thermal on his second lap around. His 70-mile run was bettered by George Tweed, now of Cubic Corp., who kept his glider afloat for six more miles.

Third place went to Duke Stallings of GD/Astro who managed to reach the starting point before the deadline in his modified Schweizer TG-2.

The next day, Whigham came in just two miles behind the winner over a similar course with turn points at Valley Vista and a highway crossroad landmark. Jack Green, flying Tweed's sailplane, made it around the 52-mile course twice to mark up 109 miles; Whigham made 107 miles; and Stallings was third again with 61 miles.

Other contestants were Jim McCarrier, flying a home-built Cherokee glider, Larry Erickson and John Walker, both flying Schweizer 1-26s.

Gene Cain of GD/Astro served as starter and tow plane pilot.

Engineering Review Course Offered by Calif. U. Extension

General Dynamics engineers in California intending to take professional examination for mechanical engineers this fall are reminded of a special review course beginning next week.

Registrations are now being accepted by University of California Extension office for the course starting July 26.

This course includes a review of fundamentals in the fields of strength of materials, thermodynamics, fluid mechanics, heat transfer, dynamics, engineering economics. It helps prepare applicants for the Nov. 17 professional examination offered by the State Board of Registration for Civil and Professional Engineers.

Before students can enroll in the course, they must have had at least two years of experience in a responsible position, said Carl G. Erickson of GD/Astro, class coordinator.

Juniors Spotlighted By ARA Coineers

Young collectors will be spotlighted at tonight's (July 18) meeting of ARA Coineers, when their activities receive special attention, and an auction is held for their exclusive benefit.

The meeting is slated for 7:30 p.m. in the ARA Clubhouse.

A movie, "The Universe," will be shown, and display theme will be "My Favorite Coin and Its History." A coin auction for adults is also planned.

Second-shift members of Swing Shift Coin Club will meet at 1:30 a.m., July 19, also in the ARA Clubhouse. Their program includes a "swap session" and showing of the movie "Friendship 7."

GD/Convair Son, Skating Champ, Seeks National Senior Title

Winning titles is becoming a habit with John Renz, "free wheeling" son of L. J. Renz, GD/Convair Dept. 25.

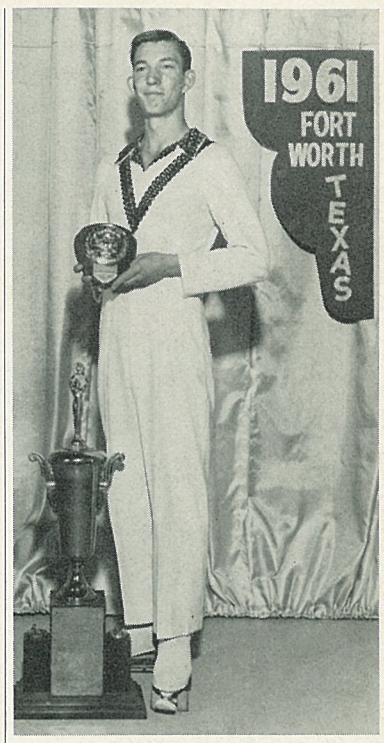
A whiz on wheels since he took up roller skating at the age of 12, John will compete for the national senior men's singles championship this month.

He will be spinning and whirling with leading skaters from the United States, Hawaii, and Canada at the July 29 competition in Lincoln, Neb. Thirty-two first through third-place winners will represent eight regions in this country, one each in Canada and Hawaii.

John won the right to be numbered among top contestants by sweeping the field in senior men's singles at the California regional meet June 29 in Oakland, Calif.

Climbing up the trophy ladder, he won both the state regional and national junior titles in 1960 and repeated the same performance for regional and national intermediate honors the following year.

The GD/Convair son, 17, will be a senior at Lincoln High School in San Diego this fall.



ON WHEELS—John Renz, GD/Convair son, heads for top national roller skating competition. Photo was taken at Fort Worth last year where he won national intermediate.

Ladies Active In Pistol Club

ARA Pistol Club will hold a shooting session at 9:15 a.m., July 22, at San Diego Police Pistol Range, Home and Federal Avenues.

Bill Geopfarth, ARA commissioner, reports three ladies are among club members now firing regularly with the group. One of them, Marian Bonagura, won her first club match in the early July shoot.

Marian fired 237 in marksman class of a .22 Camp Perry Police Course contest to win over a 220 score by Ralph Jungk.

Master class winner in this event was Ronnie Legg with 293 of a possible 300 points over Ralph Sanderlin's 278, while Roscoe Anderson fired 282 and Mort Williams 278 among the experts. Les Vivian led sharpshooters with 267, trailed by John Bennett with 242.

In a .22 Short National match Legg edged J. S. Knutson 280 (5-X) to 280 (4-X), while Harold Sicard fired 276 and Geopfarth 273.

FIVE SONS FORM GONZALEZ' 'TEAM'

J. G. Gonzalez, GD/Convair manufacturing control, is raising a baseball team.

Gonzalez, treasurer and manager of Twin Hills Little League, boasts four sons on the team and another expected to qualify soon. They are Joe Jr., 11; Carlos, 10; Frankie, 9; Willie, 8; and Ricky, 6. Ricky is being groomed as a pitcher and already can fire the ball with amazing accuracy.

The Gonzalez family is also represented in the stands where Mrs. Gonzalez and daughters Ofelia, 3, and Rosemary, 2, are regular rooters.

Charm School Set For Ladies, Teens

Two teen-age classes and an adult class in ARA's continuing series of self-improvement courses for women will open next week under direction of professional model and charm school instructor, Sherry Miller.

Teen-age classes will be held Mondays with the first sessions July 30. Two meeting times—2 to 4 p.m., and 5 to 7 p.m.—are available.

The women's class opens July 31 and will meet Tuesdays from 7 to 9 p.m.

All courses are run as a nine-week series with two hours' instruction each week, for a total of $25. All meetings are in the ARA Clubhouse.

Additional information is available from ARA Headquarters, ext. 1111.

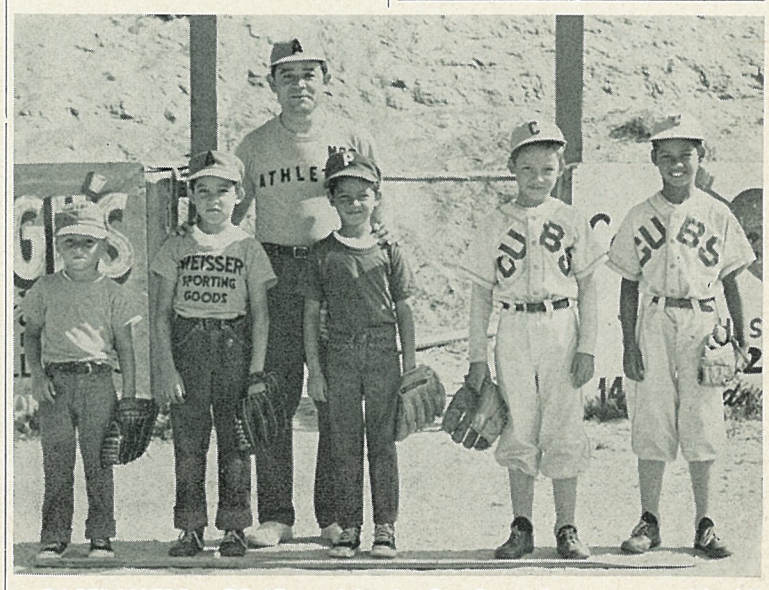
SHOW TO OCCUPY ARENA ON JULY 22

An all-day horse show will be featured in the riding arena of ARA Recreation Area starting at 9 a.m., July 22. There is no admission charge for spectators.

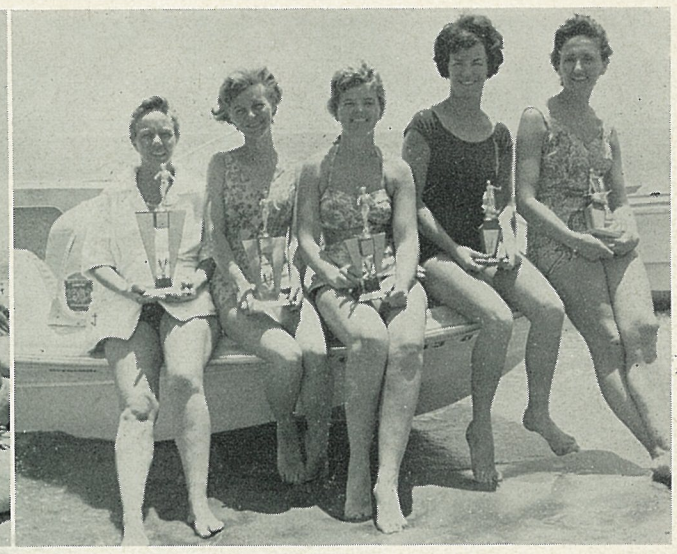
The show, with 20 scheduled events including horsemanship classes as well as gymkhana features, will bring participants from throughout the San Diego area.

During the noon intermission hay wagon rides for children will be provided by ARA Riding Club which hosts the show.

Carol Jackson is show manager, and Don Brannan, director. ARA commissioner is Art Smith.



BASEBALLERS—GD/Convair's J. G. Gonzalez poses with his baseballing sons, Ricky, Frankie, Willie, Carlos and Joe Jr.



WAVE RIDERS—ARA Water Ski Club's July 4 competition found girls at right (Elsie Christopher, first; Dottie Blomke, second; Ginger Fleming, third; Molly Hutton, fourth; and Doris Pountney, fifth) collecting trophies. At left men winners (Sam Pountney, Clarence Weiler, ARA Commissioner Bill Johnson, Paul Cook and "Mitch" Mitchell) pose with girls. Center is beach scene with skiers resting up from exercise. Fifty-three skiers took part in annual competition.

Skiers Observe 'Ladies Day'

It was "Ladies Day" at ARA Water Ski Club's annual Fourth of July ski meet, with top contenders in women's class leading their counterparts in the men's category with an aggregate 121 points to 104.

Fifty-three skiers took part in the three-hour event on Mission Bay, with scoring on a points-per-ride basis. Trophies went to leading five scorers in both men's and women's classes.

High point scorer for the day was Elsie Christopher with 27, while Dottie Blomke and men's class winner Sam Pountney scored 26.

Other ranking women skiers were Ginger Fleming (24), Molly Hutton (23) and Doris Pountney (21).

Following Pountney in men's competition were Clarence Weiler (20), ARA Commissioner Bill Johnson (20), Paul Cook (19), and "Mitch" Mitchell (19). Final rankings were determined when Weiler edged Johnson by three points in a "ski off" for second, and Cook topped Mitchell by two points in another tie-breaking ride for fourth.

Water Ski Club has scheduled another meet for Labor Day.

ROCKHOUND PICK AWARDED BY CLUB

Attendance and participation are rewarded monthly by ARA Rockhounds with the presentation of a rockhound pick to a club member.

While actual selection of the winner is by drawing, he must first have qualified on a number of rigidly defined points.

Since Rockhounds is a family organization, at least one member of the candidate's family must have participated in a club activity during the month preceding the drawing, and must have taken part in a grand total of five club events (field trips, meetings, workshops, etc.) to become eligible.

Finally, the candidate must be present when his name is drawn to receive the award.

ARA Rockhounds is open to all GD/Astro employees and members of their families.

ACTIVITY AWARD—Walter Pauls, ARA Rockhounds vice president, presents rock pick to Frank Smith at recent meeting. Drawing for award is held monthly with participation in club activities determining eligibility for prize.

Sports & Recreation

Plant League Softball Rivalry Waxes Fierce

Rivalry in ARA Plant League softball is fierce as play in five leagues nears the mid-point in second round competition.

Thirty-one teams remain active with three eight-team first shift leagues and two second shift leagues in operation.

Top contender in National League play at press time was Depot (Dept. 340) with eight wins and one loss, while Atlas (Depts. 551-452) had a 7-2 record. American League leader is unbeaten Checkouts (Dept. 773) with one tie, seven wins, while Sparkies (Dept. 782-783) stand at 6-2.

Centaurs (Dept. 960) and Chasers (Dept. 200) hold matching one tie, six wins, one loss records in the All-Star League, with Misfits (Dept. 343) close behind with a tie, four wins and three losses.

Tied for first in the second shift Daylite League are Cosmo Bums (Depts. 756-783) and Midniters (Dept. 758) with one tie, three wins, one loss standings. Thumpers (Dept. 771) have a 2-3 record for second place.

Comets (Dept. 250-1) lead the Sunshine League with six consecutive wins, while Bloopers (Dept. 550-4) are second with a 4-4 record.

Arts, Crafts Group Forms

An organizational meeting for an arts and crafts activity under ARA sponsorship is slated for 7:30 p.m. July 26 in ARA Clubhouse.

Subjects to be discussed include interest in sketching, water colors, oil painting, cartooning, pottery, ceramics, pastels, murals, etc. Other forms of art may also be covered, if interest warrants. Also under consideration will be possible instruction sessions in any or all of the forms included.

D. A. George (Dept. 783-0) will supply details to those calling ext. 4150.

Lost Craters Talk Slated for Meeting Of Explorers Club

An unusual program at the business meeting, and a special field trip are on the July agenda of ARA Explorers Club.

San Diegans Howard Fisher and Bob Williams will describe explorations of a newly discovered area of Mexico at the meeting at 7:30 p.m. today (July 18) in the ARA Clubhouse.

They have conducted a series of expeditions under sponsorship of the local section of Archaeological Institute of America to newly-found craters in a remote area of northwest Sonora, Mexico. They will discuss their trips and show slides and a movie at the Explorers Club meeting.

New members and guests have been invited to this meeting by Larry Beaver, ARA commissioner. A discussion of club trips for the coming months is also on the meeting schedule.

Club members and their families will leave July 21 for a two-day trip to Puerto Santo Tomas, 115 miles south of San Diego in Baja California. A Mexican guide will meet the group at its destination to lead members through caves seldom seen by U.S. visitors.

Additional information on the trip is available from Paul DuPre, Plant 2 ext. 1479.

Club Displays Prize Exhibit

Now displayed in the lobby of ARA Clubhouse is the prize-winning space flight exhibit of ARA Stamp Club which took third place honors among topical collections at the recent San Diego County Fair.

The display includes contributions from Don Thompson, club president, Bill Bowen, Marshall Hurlich and Haydon LaNois. Background against which the stamps are shown was designed and prepared by Mrs. Thompson.

Fair honors also went to individual entries by members of the ARA club.

First place for a topical exhibit of four frames on the theme "Music on Stamps" went to Mrs. Hurlich, while a five-frame specialized exhibit of provisional stamps of Israel won a second place for Fred Lawson.

ARA Family Day Set For Aug. 26

Astronautics Recreation Association has selected Sunday, Aug. 26, for a special family day of fun to be held in ARA Recreation Area adjacent to the main plant.

Billed as "ARA on Parade," the event begins at 11 a.m. and continues until 10 p.m.

While plans are still being formulated, decisions have been made on enough points to assure every family entertainment. There will be static and live displays featuring ARA-sponsored activities from astronomy to water skiing. Families may see these groups in action, meet the people responsible and ask questions.

A polka band for dancing and square dance sets for do si do enthusiasts will be included.

Prizes for all ages will be very much in evidence. Drawings for children's prizes will occur frequently as will special drawings for employees. A 21-inch color television console will be grand prize for employees with periodic drawings for portable transistor radios.

Topping off the day will be a giant barbecue.

Except for the barbecue and refreshments, everything will be free.

A unique brochure outlining ARA and its activities has been prepared for mailing to the homes of all employees. A special insert will explain "ARA on Parade" and include a ticket stub employees must bring to the Area to be eligible for prizes.

J. T. "Jerry" Schultz, veteran employee services representative, heads an ARA Employees' Council committee planning the event.

"Our Area, and especially our ARA Clubhouse, has reached a stage of completion to warrant this event," said Bryan Weickersheimmer, ARA president. "Thousands of volunteers have made the facilities possible. We would like to recognize their efforts and at the same time acquaint all Astro families with the many spare-time activities available to them through ARA."

2,300 Attend Annual Picnic In ARA Area

More than 2,300 persons gathered in ARA Recreation Area July 4 when Depts. 782 and 783 held their annual picnic. D. A. George headed the planning committee.

Entertainment included a wheel chair square dance by Wheelacades, a magic act by Ernie Medina (Dept. 781) and comedy routines by the Lo Fi Combo, a group from the ARA-sponsored Hi-Fi/Music Club. Dance music was furnished by the Powerhouse Regal Five.

A. C. Pranskevich (Dept. 782) won the adult raffle grand prize, dinner and champagne for two at a leading night spot.

Softball competition found Dept. 782 downing Dept. 783 by a score of 20-8.

'Music Man' Benefit Tickets Available

Exchange tickets for the premiere west coast showing of "Music Man" (the film version) are now available through GD/Astro's employee services office in Bldg. 8.

Scheduled for 8:30 p.m. July 24 at the Fox Theater, the event will benefit Boy's Clubs of San Diego. A dinner will precede the event at the new Ocean House. Dinner tickets are $6 each. Show tickets are either $5 or $10 each, depending upon location, and must be purchased before dinner tickets.

Arrangements may be made to send exchange tickets to other employee services outlets on request.

ARA Calendar

(GD/Astronautics Recreation Association has some 40 activities in operation for employees. For information, call ARA Headquarters, ext. 1111.)

ASTRO MOTORS—Motorcycle club meets 7:30 p.m., July 18, ARA Clubhouse.

ARCHAEOLOGY — Meeting 7:30 p.m., July 25, ARA Clubhouse.

ARTS & CRAFTS—Organizational meeting of new group, 7:30 p.m., July 26, ARA Clubhouse. Details from D. A. George, ext. 4150.

ASTRO NOTES — Chorus rehearses 7:30 p.m., Mondays, ARA Clubhouse. Appearance at Mission Gorge Trailer Villa, July 26.

COINS — Coineers meet 7:30 p.m. tonight (July 18); Swing Shift Coin Club at 1:30 a.m., July 19; both in ARA Clubhouse.

EXPLORERS — Meeting 7:30 p.m. tonight (July 18), ARA Clubhouse. Field trip July 21-22.

GROUP TRAVEL—Hawaii trip Aug. 18 - Sept. 1. $300 per person includes transportation and hotel. $340 includes additional island tours.

HI-FI/MUSIC — Meeting 7:30 p.m., July 25, ARA Clubhouse.

ICE SKATING — Skating at Iceland, 6055 Lake Murray Blvd., La Mesa tomorrow (July 19), 6:30 p.m. Details from Bud Davies, ext. 4042.

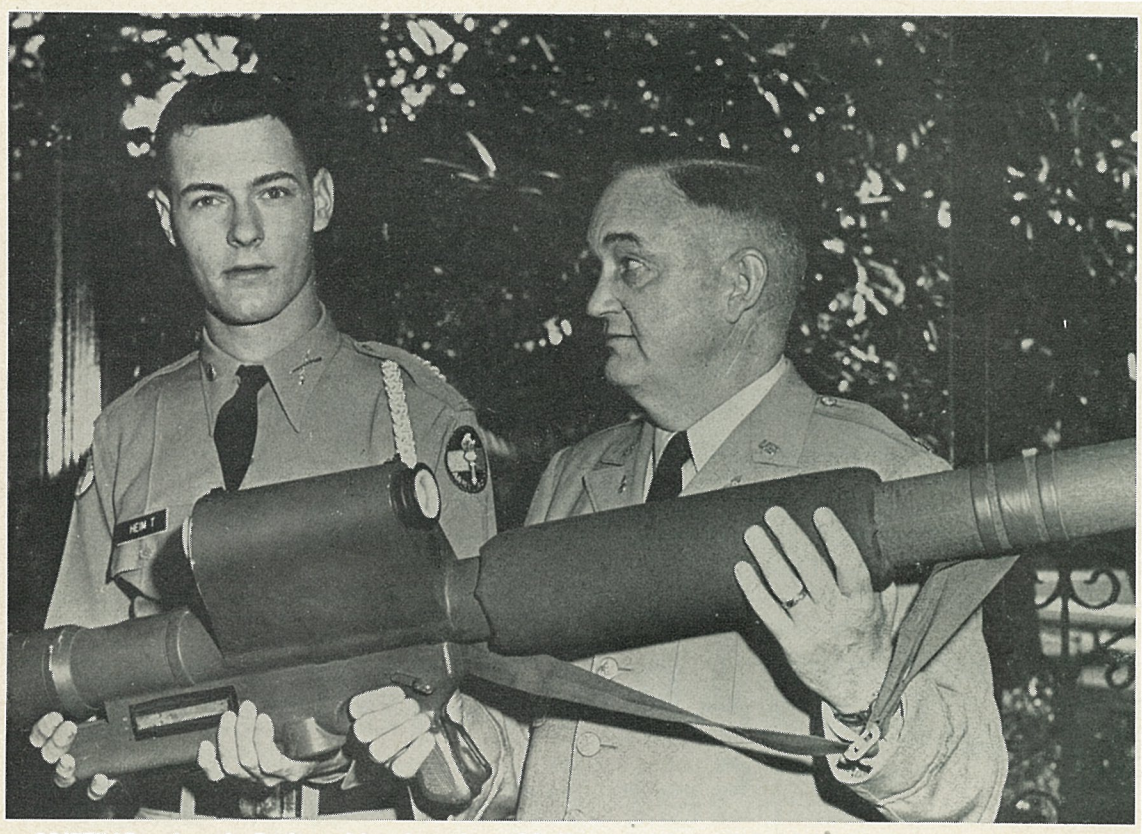
PISTOL — Club matches 9:15 a.m., July 22, San Diego Police Pistol Range.

RIDING CLUB—Horse show 9 a.m. - 5 p.m., July 22, ARA Area arena. Free.

SINGLES—Dance July 20, 9 p.m., ARA Area. Beach party July 21.

TRAILER CLUB — Outing at Oakzanita July 21-22. Wiley Clark is wagon master. Swimming, games, dancing. Visitors welcome.

WIVES AUXILIARY — Free classes in cake and gelatin decorating Thursdays 9 - 10:30 a.m., ARA Clubhouse. Reservations with Mrs. R. J. Buchan, BR-8-8706.



BRIEFING—Army's Redeye (developed at GD/Pomona) is explained by Lt. Col. Joe T. Beck, Chief of Inspection Division, Los Angeles Army Ordnance District, to Cadet 2nd Lt. Thomas A. Heim of Pasadena High School ROTC during recent visit to Army missile procurement agency.

Hustler Crews Drill For 1962 Competition

Crack B-58 Hustler crews from 43rd and 305th Bomb Wings are poised for 1962 SAC Combat Competition, which will be run over a "common course" Sept. 10-15.

Instead of competing from a central base, planes will fly from their home bases to a point where the route becomes common to all, SAC announced.

The Mach 2 Hustler—making its second appearance in "World Series" bombing competition—will compete against B-52 and B-47 bombers. KC-135 and KC-97 tankers also will compete.

On the way to the common route, competing crews will fly a celestial grid navigation leg. Bombing, air refueling, low-altitude navigation and electronic countermeasures activities will be conducted along the common route.

The bomb wing with the best composite score in these activities will receive the coveted Fairchild Trophy for a year.

Additionally, trophies will go to the best B-58, B-52 and B-47 units and to the best crews for each type aircraft. A best overall crew in the competition also will be named.

Scoring is based on: bombing, 40 points; high-level navigation, 20; low-level navigation, 10; air refueling, 10; and ECM, 20.

Each crew can score a maximum of 100 points, while a bomb wing can amass a possible 300 points. SAC Headquarters at Offutt AFB will maintain a central scoreboard.

Each competing bomb wing has been directed to name one Select (S), one Senior (E) and one Ready (R) crew in order to obtain a cross section of SAC combat crews.

Select crews are picked for "outstanding qualifications"; Senior crews for their relative degree of experience and professionalism; and Ready crews for their ability to perform a mission assignment.

Col. Frank O'Brien Jr., commander of 305th Bomb Wing at Bunker Hill AFB, Peru, Ind., has named the following three crews.

S crew: Maj. Sidney J. Kubesch, Maj. John O. Barrett and 1st Lt. Geral R. Williamson.

E crew: Capt. Wallace D. Worman, Maj. Herbert F. Fette and Capt. Louie A. Babbitt.

R crew: Maj. John S. Williams, Maj. Joseph N. Laccetti and Capt. Daniel L. McCarthy.

To represent 43rd Bomb Wing at Carswell AFB, Fort Worth, Col. Everett W. Holstrom, commander, has named:

S crew: Lt. Col. Harold E. Confer, Lt. Col. Richard H. Weir and Maj. Howard S. Bialas.

E crew: Lt. Col. David P. Hopwood, Capt. Harold M. Covington and Capt. William D. Gillett.

R crew: Maj. Leslie R. Prout Jr., Maj. Lorne R. Worthy and Capt. Donald J. Avallon.

Each bomber unit is scheduled to fly one of its crews on the first three dates. The last three dates will be kept open for make-ups due to weather.

Repair Time Cut in Half By On-Spot Panel Weld

A new welding process that allows rapid, on-the-line repair of B-58 honeycomb panels was demonstrated for the Air Force at GD/Fort Worth last week.

On hand were personnel from three sites slated to receive the new arc spot welders—43rd Bomb Wing at Carswell AFB, 305th Bomb Wing at Bunker Hill AFB, and San Antonio Air Materiel Area. Kelly AFB was also represented.

"Not only does the new process cut repair time in half," said Joe Taylor, manufacturing research engineer, "but it permits on-the-spot repairs not possible using present methods."

Reliability of the process was proven on a prototype—probably the first in the aircraft industry—built and operated at GD/Fort Worth since 1958.

"We repaired over 200 damaged B-58 panels without having to scrap a single one," Taylor explained recently.

Key to the new method is a copper "welding nozzle" about one-quarter inch in diameter. This head concentrates the weld nugget on the immediate area, preventing heat from spreading to adjacent areas.

"This is vital when temperatures sometimes approach 2,000 degrees Fahrenheit during welding," Taylor said. "With conventional welding, the extreme heat often causes contaminants such as internal oil and fuel inside the honeycomb to emit harmful gases."

Pre-welded, standardized "patch assemblies"—also made on the arc spot welder—will be used by flight-line technicians. After placing the patch, the welder operator sets a timing device which automatically holds the weld on a certain spot for a prescribed time. The operator initiates action by a two-stage foot pedal.

"Another advantage of the arc welder is that access need be made only on one side of the panel," Taylor emphasized.

Practically any configuration honeycomb can be repaired on the arc spot welder. But where a part is extremely difficult to reach, a manual "gun-type" welder can be used.

One Air Force sergeant estimated that repair time of the average honeycomb panel would be reduced by about 100 per cent using the new process. The process precludes involved heating and cooling processes now used.

"But even more important," he said, "we'll be able to repair virtually all panels on site rather than sending them to a general repair depot."

"And possibly most important of all is the reliability factor," Taylor said. "The savings in time, effort and money should be appreciable."

Accident-Free Year Flown by Texas Sq.

A Texas Air Force squadron, flying Convair-built interceptors, completed an entire year without an accident the latter part of June.

The 3558th Flying Training Squadron, Perrin AFB, near Sherman, Texas, piled up a total of 20,126 hours, 45 minutes, during the 12-month period, with over half that time in F/TF-102s.

Slightly over 10,216 hours were flown in the Convair jets, reports L. D. Harris, GD/Convair field service representative with the 3555th M&S Group at the base.

The 3558th squadron has been flying F-102s over two years and had missed a previous year's safety record during that period by only 16 days.

OPERATORS—H. R. Dvorak, left, chief of Nuclear R&D, and Maj. E. A. Kostyniak, right, AF chief-development engineering division, present nuclear reactor licenses to, from left: Jack Pugh, test engineer, J. E. Medley, nuclear engineer, and R. H. Brickley, senior test engineer.

Licenses to Operate Reactors Issued to Three FW Engineers

Three nuclear reactor operator licenses were awarded by the Air Force at GD/Fort Worth this month.

Receiving the licenses from Maj. E. A. Kostyniak, base development manager division, Air Force Plant Representative's Office, were: Jack Pugh, test engineer, J. E. Medley, nuclear engineer, and R. H. Brickley, senior test engineer.

The licenses authorize these men to operate the aerospace systems test reactor, ground test reactor and reactivity test assembly.

Tests were conducted by Air Force consultants Dr. J. E. Carothers, Lawrence Radiation Laboratory, and Dr. R. G. Cochran, head of the department of nuclear engineering and nuclear science center at Texas A & M College.

Issuance of the three licenses brings to 10 the total number awarded to GD/Fort Worth personnel.

Previous recipients were: C. W. Dickerson, nuclear engineer; E. L. Jordan, nuclear engineer; J. B. McGuffin, aircraft shield test reactor coordinator; Willie Park, ground test reactor coordinator; J. T. Pancoast III, senior nuclear engineer; D. F. Ross, nuclear engineer; and E. J. Brunner, nuclear test laboratory group engineer.

Secrest Lecturer At Texas Institute

Dr. E. L. Secrest, chief of applied research, was guest lecturer at a recent all-day Summer Institute sponsored by National Science Foundation at Texas Christian University.

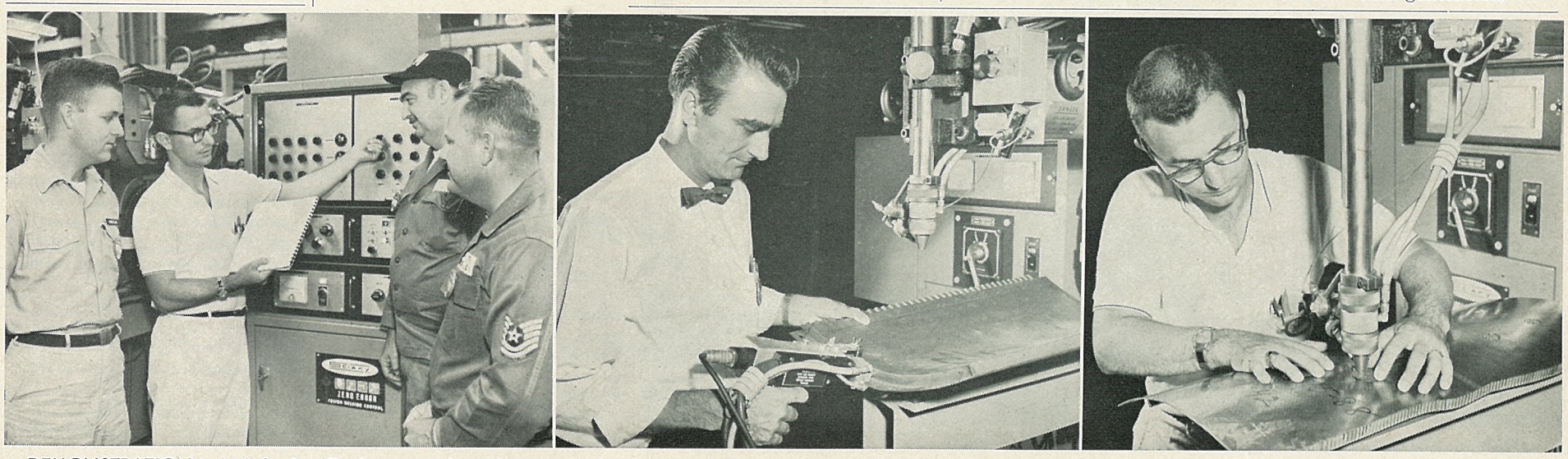
His topic was "Survey of Modern Physics." High school and secondary school science teachers from a wide area attended.

GENERAL ATOMIC AWARDED CONTRACT FOR CELLS STUDY

General Atomic Division of General Dynamics has been awarded an Atomic Energy Commission contract for more than $400,000 for research and development of fission-heated thermionic cells for use in high-performance nuclear reactor systems.

Under the contract with AEC, work will be directed toward determining the feasibility and practicality of thermionic generators which contain fissionable material for operation inside a nuclear reactor. Tests on in-pile thermionic generators which directly convert the fission heat of a reactor into usable electrical power will be included in the program.

General Atomic has been conducting preliminary in-reactor tests since early 1960. Subsequent tests for the AEC will investigate the long-time effects of a nuclear reactor environment on the thermionic generators.



DEMONSTRATION—At left, Joe Taylor, manufacturing research engineer, briefs Air Force personnel on arc spot welder instrument panel. AF visitors are S/Sgt. L. D. Croft, 43rd Bomb Wing, M/Sgt. K. P. Teeters, T/Sgt. J. H. White, 305th Bomb Wing. At right Taylor demonstrates arc spot weld on B-58 panel patch assembly. In center R. E. Haas, engineer, uses welding "gun." New welding process permits fast, on-the-line repair.

GENERAL DYNAMICS

NEWS

ASTRONAUTICS EDITION
(OFF-SITE)

Vol. 15, No. 15 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, July 18, 1962

POPULAR—Project Mercury reliability symbol on Atlas slated for next man-in-space launch was autographed by Astronauts Glenn and Carpenter on recent visit to GD/Astro plant. Reproduced for bulletin board display, symbols proved overly popular; disappeared as fast as they were put up.

Atlas Veterans Filling Key Positions in SLV

General Dynamics/Astronautics has assigned a group of Atlas program veterans to fill key posts in the recently projectized Space Launch Vehicle (SLV) program organization.

Brought together are management, engineering, manufacturing operations and program control functions for all space programs utilizing Atlas as a space launch vehicle.

President J. R. Dempsey announced formation of this group early in July and designated C. S. Ames, vice president and program director—space launch vehicles, to head it.

Ames has filled eight key positions, with other appointments pending. Included are three assistant program directors responsible for program offices: R. S. Campbell for Atlas-Agena; R. W. Keehn for Mercury and Centaur; and J. S. Berggren for standard space launch vehicles. Also reporting directly to Ames are: P. E. Culbertson, manager of systems engineering; F. D. Applegate, chief engineer-design; L. L. Tuttle, manager of manufacturing operations; R. A. Wohl, manager of program control; and T. L. Maloy, manager of launch operations. W. J. Maloney is reliability control program administrator for the SLV function.

Dempsey indicated the new organization will have prime responsibility for budgets, expendi-

(Continued on Page 2)

15,000 BUYING PAYROLL BONDS

Approximately 15,000 General Dynamics/Astronautics employees now buy U.S. Savings Bonds regularly through payroll deductions.

During June some 4,000 new buyers joined the program following a solicitation of non-buyers.

Percentage figures show that approximately 38 per cent of Astro employees working off-site are regular bond purchasers, while at the main plant the figure is approaching 50 per cent.

Tabulations continue following contacts with employees on leave, vacations or travel status during the time the campaign was in progress. This year only those who were not signed up for bond purchases through payroll deductions were contacted.

NEW ASSIGNMENTS—These men hold key positions in recently projectized Space Launch Vehicles function at GD/Astro. Seated from left are J. S. Berggren, R. W. Keehn, C. S. Ames (vice president and program director), R. S. Campbell. Standing, same order, L. L. Tuttle, R. A. Wohl, P. E. Culbertson, W. J. Maloney, T. L. Maloy, F. D. Applegate.

Axe Poised For Slash At High Utility Costs

Most folk would flip, if told their utility bills would exceed $1.5 million during the next 12 months.

But that's the prospect at General Dynamics/Astronautics where employees are being asked to lend a determined hand to conserve and economize.

Utilities include electric power and lights, water, gas, compressed air and processing systems. Since March a consulting firm has studied Astro's use of these items with an eye toward cost reduction. Some recommendations have already been adopted; others will follow.

Goal of the effort is to chop as much as $200,000 off these costs, a figure well within reason from preliminary studies.

Mortimer Rosenbaum, executive vice president, has designated W. J. Stanley, manager of plant engineering, to head the effort. James Dallas, utilities operations supervisor, is coordinating the in-plant work.

One specific area—conservation of electricity—has been singled out as one in which the average employee can help most.

Last year Astro used almost 58-million kilowatt hours of electricity, enough to serve 17,285 average San Diego homes which use about 3,350 kilowatt hours each. Much of this went into lighting.

"Rumors persist that it is cheaper to leave lights on at all times than to turn them off and on as needed," Stanley said. "This is NOT true."

A good example involves Bldgs. 1 and 3, major office areas.

To burn all lights there constantly consumes about 248,832 kilowatt hours monthly for which Astro pays about $2,500. Used 10 hours daily through the normal work week only, the cost drops to about $760 monthly for 76,032 kilowatt hours.

This would mean an annual saving of $20,736!

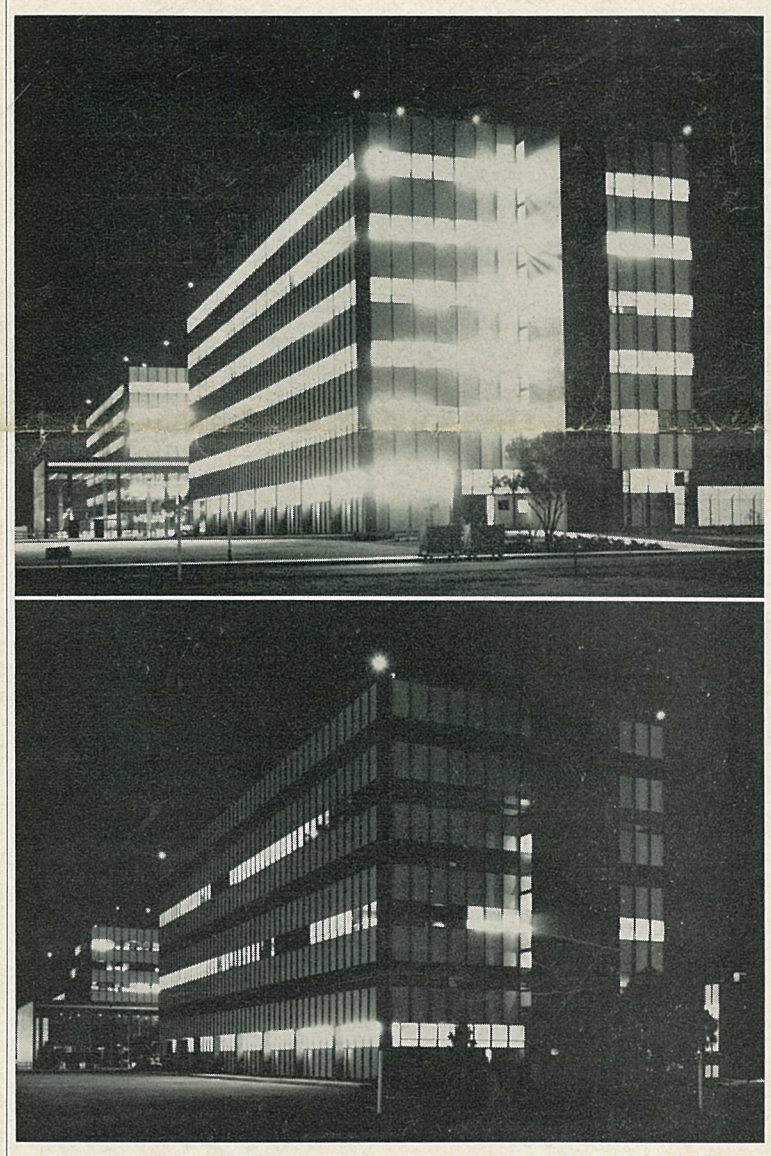
"The same holds true in other areas," Stanley added. "We urge every employee to turn off every light not actually needed. And never leave lights on in unoccupied areas when departing at the end of a shift."

Obviously, many departments are assisting in the program. In areas conducting metal cleaning and chemical treatment of production materials cost reducing methods are being employed following mutual agreement of merit. In some areas individual employees have come up with still further ideas for reducing utility costs.

Plant engineering has already slashed costs by such means as reducing the number of lights per standard in parking lots, staggering hallway lights, reducing unnecessary lights in factory and office areas and the installation of switches allowing partial use of lighting as needed.

Employees with helpful suggestions concerning the program or those who may need information on how to turn lights off are invited to contact Dallas at ext. 2140.

The present program will continue indefinitely and includes all Astro installations in the San Diego area.



BEFORE AND AFTER—Photos of Bldgs. 1 and 3 at GD/Astronautics offer dramatic contrast between use of all lights, and only those actually needed. If lights were left on full for month, cost would be $2,500. Cost is cut to $760 by using lights only when necessary.

Charger Game Will Benefit Tri-Hospital

Tickets for the Aug. 11 San Diego Chargers vs. Dallas Texans game will go on sale Monday (July 23) at both GD/Astronautics and GD/Convair employee services and at outlets at Sycamore, Plant 2, Rose Canyon and GD/Electronics' Hancock St. facility.

Sponsored by the San Diego Union and Evening Tribune, the game will be a benefit for the Tri-Hospital Building Fund to which General Dynamics employees in the San Diego area have been contributors for the last three years.

R. H. Biron, Dynamics vice president and a solicitation leader in the original Tri-Hospital campaign, said he hoped the game would raise more than $35,000 for the fund.

Tickets are priced at $5 and $3.50 for reserved seats, $2.50 for general admission, and 75 cents for children.

Biron said that a report will be forthcoming soon on the total amounts that Dynamics employees have contributed to Tri-Hospital thus far, making possible construction recently completed at Sharp, that now under way at Scripps, and additions scheduled to start next year at Mercy.

Detective Work

Info Center Draws Some 'Lulus' When it Comes to Questions

Ever need to know about the fee for a South Dakota birth certificate?

Or the internal resistance between the terminals of a certain voltage comparator? Or perhaps whether Warren AFB has switched to daylight saving time?

These, and countless other questions have poured into General Dynamics/Astronautics information center (dial INFO) since it opened for business a few months ago.

Need to know something and lack the answer? You might try dialing INFO at GD/Astronautics home plant. Chances are you'll get an answer, or a tip on where to find it.

The center was established by communication (Dept. 128) to boost efficiency and economy of GD/Astro operations by providing those with "a need to know" with a central clearing point for their questions.

An Astro employee with a question has only to dial ext. 4636 (INFO) to set operators Virginia Orpin or Betty Gossett on the trail of an answer.

When INFO was set up, all departments were queried for information available in their groups. This data was classified by topic on file cards (the file now covers over 3,000 areas) to which oper-

(Continued on Page 2)

Log Book Entries

A. D. Stone, GD/Astro Dept. 155, recently received his 25-year pin.

Service Emblems

MAIN PLANT

Service emblems due during the period July 16 through July 31.

Twenty-year: Dept. 141-1, E. G. Callard; Dept. 143-9, S. S. Smith Jr.; Dept. 250-2, G. J. Buck; Dept. 335-2, C. B. Ward; Dept. 401, R. L. Fullmer, L. A. Gillett; Dept. 402-1, T. E. Hughes; Dept. 783-0, Francis Budz.

Fifteen-year: Dept. 143-3, R. H. Cunningham; Dept. 451-0, M. P. Walstrom; Dept. 480-0, D. G. Goodland; Dept. 522-2, John Norse; Dept. 573-0, Lorraine L. Welter; Dept. 771-0, Harley Hagwood; Dept. 782-0, L. H. Mabley; Dept. 831-1, Helen A. Mackes; Dept. 832-1, O. R. Linhardt.

Ten-year: Dept. 101-0, L. B. Albright; Dept. 140-0, Gladys K. Speed; Dept. 143-1, Rodrigo Vasquez; Dept. 154-1, P. A. Welburn; Dept. 194-0, F. S. Mascari; Dept. 223-1, R. D. Thompson; Dept. 250-5, C. E. Moon Jr.; Dept. 305-0, T. G. Fleming Jr., W. W. Johnson; Dept. 321-4, C. L. Pearson; Dept. 337, W. L. Stoffel, Lawrence Sweeting, J. J. Zagami; Dept. 343-3, D. E. Smith; Dept. 351-6, P. J. Daudenberger.

Dept. 403-1, W. E. Jacobs; Dept. 451-0, R. A. Lund; Dept. 453-0, J. T. Powell; Dept. 522-2, D. L. McClarren, R. E. Wilson; Dept. 561-2, L. S. Hansen; Dept. 756-0, R. H. Daniel, A. W. Torguson; Dept. 831-1, R. H. Bertram, Henrietta L. Ross; Dept. 833-3, M. P. Dull; Dept. 975-3, J. E. Ginn.

ALTUS AFB

Fifteen-year: Dept. 617-3, A. L. Brumley.

Ten-year: Dept. 617, Lois J. Dodd, Bill Heincy.

DYESS AFB

Fifteen-year: Dept. 618-4, W. T. Black.

Ten-year: Dept. 618-3, N. N. Lyter.

VANDENBERG AFB

Fifteen-year: Dept. 576-3, C. H. Towner.

Ten-year: Dept. 576-3, W. W. Mackey.

Promotions

MAIN PLANT

Promotions to or within supervision effective July 2.

Dept. 101, Data Processing: To data processing supervisor, B. W. Gurrad. To material control asst. supervisor, J. B. Peterman. To clerical asst. supervisor, C. Taliaferro.

Dept. 124, Communication: To photographic asst. supervisor, R. E. Williams. To photographic supervisor, L. E. Steadman, M. R. Ussery.

Dept. 141, Quality Control: To process control asst. supervisor, R. E. Dubel.

Dept. 143, Inspection: To inspection asst. supervisor, G. A. Knauss.

Dept. 333, Off-Site Logistics: To support logistics asst. supervisor, F. T. Zeglis Jr.

Dept. 335, Service Parts: To support logistics general supervisor, E. Kight Jr.

Dept. 538, Design Liaison Section: To design group engineer, W. R. Hall.

Dept. 581, Advanced Systems: To advanced systems group engineer, R. T. Sullins Jr.

Dept. 955, Centaur Program Control: To contract administrator, R. W. Frye.

EDWARDS RS

Dept. 975, Centaur Operations: To flight test group engineer, C. A. Notar.

PLATTSBURGH AFB

Dept. 620, GD/Astronautics Operations: To launch complex supervisor, G. H. Wilson.

WALKER AFB

Dept. 619, GD/Astronautics Operations: To cost control supervisor, G. A. Tatum.

Births

MAIN PLANT

GLASS—Son, John Scott, 7 lbs., 5½ oz., born June 19 to Mr. and Mrs. H. F. Glass, Dept. 250-1.

ZILLGITT—Daughter, Jana Kay, 7 lbs., 12 oz., born July 1 to Mr. and Mrs. Bruce Zillgitt, Dept. 549-3.

Deaths

MAIN PLANT

BARRETT—William F., Dept. 831-1. Died June 25. Survived by wife, Thelma.

MANDEKIC — Stanley, Dept. 564-4. Died June 30. Survived by wife, Mary.

PETZON—Arthur E., Dept. 301-1. Died July 4. Survived by wife, Charlotte.

VANDENBERG AFB

WATKINS—John Y., Dept. 576-3. Died July 3. Survived by mother, Ruth; brother, James.

Atlas Veterans Filling Key Positions in SLV

(Continued from Page 1)

ture of funds, schedules, and program performance including engineering, final assembly, check out and launch operations on all current and follow-on Atlas contracts in the space vehicle field.

"The timely and successful completion of contracted tasks is vital to the future of Astronautics," Dempsey said. "Therefore, the cooperation of all departments with the Space Launch Vehicle organization is expected."

Changes now being made are similar to those taken when the Centaur project line organization was created at Astronautics.

Basically, employees now engaged in SLV programs full-time will shift to the new departments being created.

Institutional support from such functions as communication, legal, industrial relations, contracts, etc., will continue to be provided by appropriate departments. Departments with facilities which support more than one project will also continue to serve as needed.

"Atlas is a first-stage launch vehicle with a known reliability developed over a number of years," Ames said. "To date, Series D Atlases have served as space launch vehicles for more than 25 Air Force and NASA space missions, including the two manned orbital flights for Project Mercury.

"Timely creation of this new organization is imperative, if we are to satisfy customer wants and at the same time be more responsive to customer attitudes now as well as in the development and production of new systems," he added.

Movie Slated At Hi-Fi Meet

The movie "Star Builders" will be shown at the meeting of ARA Hi-Fi/Music Club at 7:30 p.m., July 25 in the ARA Clubhouse.

Ben LaChance, ARA Commissioner, has announced that the club's full complement of high fidelity audio equipment has arrived, and electronic test equipment will be available shortly.

Club equipment includes a preamplifier, amplifiers (60 watts per channel), quarter- and half-track tape recorders, FM tuner with multiplex, precision turntable and separate automatic changer, and matched speaker sets for both monitor and concert purposes.

Volunteers are finishing the club's listening room and console cabinetry, with working parties held from 8 a.m. to noon, and noon to 4 p.m., Saturdays. Some cabinet work is also done during evening hours.

"Those who wish to assist with the work may contact Vic Salazar or Bob Ross at ext. 873," LaChance said. "Astro employees may obtain additional information about the club by calling me at ext. 2324."

Newly elected Hi-Fi/Music Club officers are Reini Braun, president; Bill Brown, vice president; and Valerie Knettle, secretary.

Personals

VANDENBERG AFB

My sincere appreciation for the many kindnesses shown my mother and me following the death of my father, Raymond Cook.

Joy Cook.

MISSILE SAFETY CONFERENCE HELD

Seven representatives from General Dynamics/Astronautics were on hand last month for the 50th Air Force-Industry Conference on "Missile Electrical—Mechanical Safety Problems" held at Riverside, Calif.

Under sponsorship of the Directorate of Missile Safety, Deputy Inspector General for Safety, USAF, the affair drew representatives from all aerospace industries.

Astro's representatives were J. W. Garrison, Jarrett Friend, Richard Milligan, Dean Short, J. W. Harr, F. P. Iannolo and Henry Pallulat.

Garrison Authors Safety Pamphlet

J. W. Garrison, GD/Astro's chief safety engineer, was a contributing author to a recently distributed Missile Safety Officer's kit packet prepared by the Directorate of Missile Safety, USAF.

Garrison's contribution was a pamphlet titled "Success is Just a Micron Away." It dealt with GD/Astro's attention to cleanliness in missile parts. It was the third time Garrison has contributed material for the kit.

Charger Tickets To Be Sold Here

Twenty-eight season tickets to San Diego Charger professional football games are now available through employee services, Bldg. 8, at General Dynamics/Astronautics.

The seats are located on the west (shady) side of the stadium about the 10-yard line. They are in the upper deck, rows 10 and 11, Section 6.

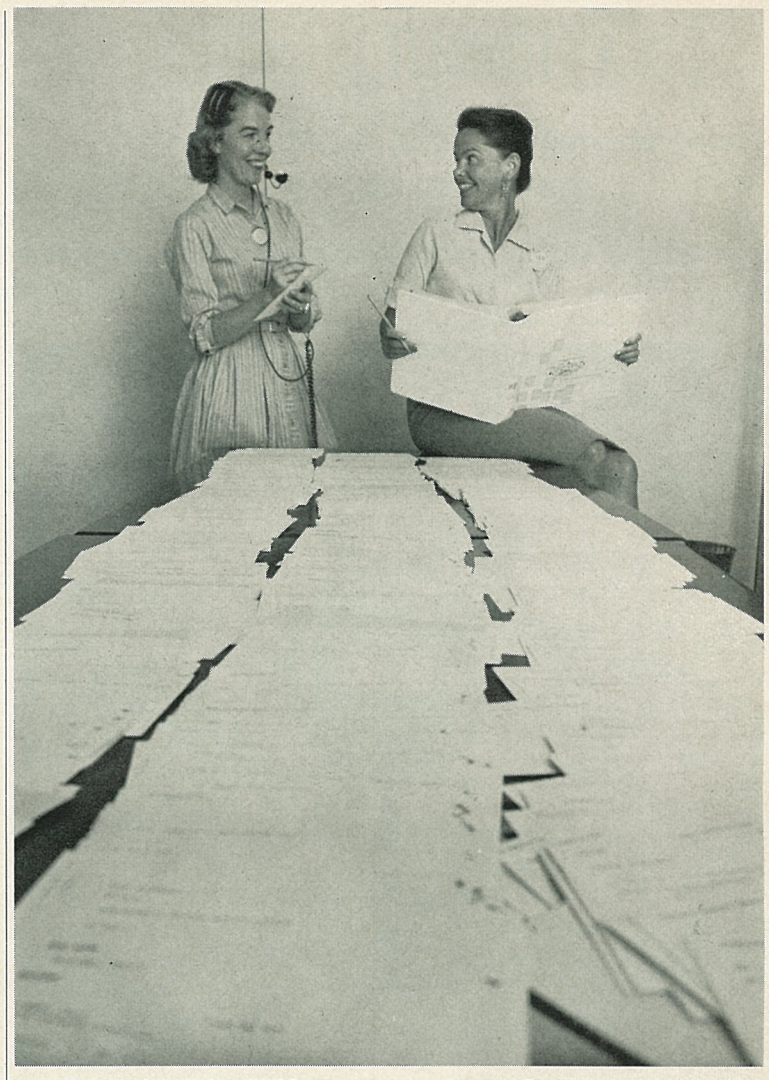
Individual seats are $35 for seven league games only or $50 for the entire season, the regular price.

Dance Series Open To Single Adults

Another in ARA Singles Club's continuing series of dances open to all single adult GD/Astro employees will begin at 9 p.m., July 20 in ARA Recreation Area.

Planned are dancing to live music, and refreshments. Admission is 50 cents, upon presentation of GD/Astro identification card.

On July 21 the group will sponsor a beach party at Mission Bay beginning at 4 p.m. Details on this event will be announced at the dance the previous evening.



ALL ANSWERS—INFO operators Betty Gossett and Virginia Orpin display some of 3,000 subject cards now on file in Astro information center. Center, ext. 4636, will help provide answers to questions on any work-related subject.

Detective Work

Info Center Draws Some 'Lulus' When it Comes to Questions

(Continued from Page 1)

ators refer when a question is received.

Often the card contains the answer. If not, it frequently lists an information source. If there's no card, operators will research and document the question.

"The case of the misguided telegram is an example of our operation," said Virginia. "A priority message to 'Jim Fair' was received, but no Astro employee with that name was concerned with its subject.

"Betty started thinking of names with a similar sound, and we soon located a Mr. Sayre who was anxiously awaiting the wire."

Another INFO question involved locating a large quartz lens needed by an engineering group.

This time a call to General Dynamics/Convair revealed such a lens had been produced at that division a few years earlier. More detective work located the lens—in storage in another GD/Astro department.

Other questions are routine. Employees need a list of addresses for General Dynamics divisions; or the name of GD/Astro's resident office manager at Dayton, Ohio.

"Employees are encouraged to use INFO at any time," said Vern Heger, internal communication project administrator. "INFO will either answer the question or locate someone who can.

"And each question means better service next time," he added. "The facts—or the source—are listed in the card file.

"Groups with special information are urged to contact INFO so they can be listed as a source of facts and figures in their specialty," Heger concluded.

Utility of the information concept is being widely recognized within the aerospace field. National Aeronautics and Space Administration (NASA) recently established a center at its Washington, D.C., headquarters.

DRIVERS REWARDED FOR SAFETY RECORD

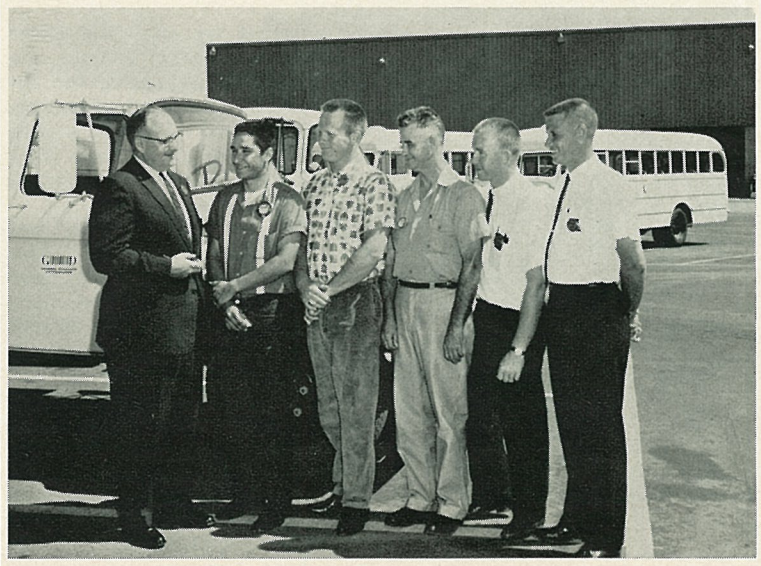
Over 150,000 accident-free miles were rewarded last month when three transportation (Dept. 250-5) truck drivers received safe driving awards at General Dynamics/Astronautics.

W. J. Stanley, plant engineering manager, presented a five-year award to E. C. Graham, and two-year pins to George Barragan and Willard Smith.

Strict regulations governing awards limit vehicle operators receiving them to a select few. An "accident" is defined as any situation involving a company vehicle which results in personal injury, vehicle damage, or damage to property or material.

Citation for moving traffic law violations is automatically disqualifying.

Operators of GD/Astro's fleet of trucks average 1,540 miles per month on the road.



CRASH-FREE—W. J. Stanley, plant engineering manager, presents safe driving awards to George Barragan, Willard Smith and E. C. Graham, as W. C. Stubbs and C. E. Adams, asst. foremen, look on.

August Dates Set For Golf Tourney

Entries for ARA's fifth annual golf championship Aug. 11-12, Aug. 18-19, at Fletcher Hills will be accepted through 1 p.m. Aug. 1, at Astro employee services, Bldg. 8.

Entrants must have established an ARA handicap or submit five score cards prior to entry deadline. Entry fee is 50 cents with players paying their own greens fees.

General Dynamics NEWS

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Fort Worth Editorial Offices, Col. 72, Admin. Bldg., GD/Fort Worth, Mail Zone 0-50, P.O. Box 748, Fort Worth 1, Texas. Telephone PErshing 8-7311, ext. 2961. Staff: Dave Lewis, editor; Mary Beck.

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* * *

Affiliated editions of General Dynamics NEWS are published in Rochester, N. Y., covering GD/Electronics and GD/Telecommunication, editorial offices, 100 Carlson Road, HUbbard 2-2200, ext. 2555, Gordon Morison, editor; and at Groton, Conn., covering GD/Electric Boat, editorial offices at Groton, HIlltop 5-4321, ext. 300 and 513, Joseph Tracey, editor.

Community Education Program Helps Quiet Sonic Boom Fears

"A jet broke the sound barrier in the Milwaukee area during early morning hours . . . and touched off a flurry of phone calls by frightened residents who thought the area was under attack."

This lead from a story in the Wisconsin State Journal was perhaps typical of headlines caused by SAC's new Mach 2 bomber, the B-58 Hustler, in 1958.

Three years later, "surprisingly few complaints" were registered as FAA and NASA used a B-58 in secret tests to determine boom effects over major populated areas.

And even fewer complaints are now called in by citizens living in B-58-corridor towns, where Hustlers make Mach 2 sorties against Air Force Radar Bombing Sites. For the most part, they've accepted sonic booms as the "sound of freedom."

At least partially responsible for the wide public acceptance is a massive three-year sonic boom education program, carried out by SAC and GD/Fort Worth. Civic and professional leaders from communities throughout B-58 corridors were called together and told all about booms—what caused them and why they had to be run over certain cities.

Result: widespread press and television coverage, which eventually braced people for booms and stripped away the devastating "surprise" element.

In the briefings, Air Force officers carefully pointed out that combat B-58s normally make supersonic sorties at altitudes from 35,000 to 50,000 feet, and in 30-mile wide corridors 300 to 350 miles long. Target cities have included Little Rock, Joplin, San Antonio, Austin, Amarillo, Atlanta, Milwaukee, Laurel (Miss.), Matagorda Island (off the Texas coast), Omaha, Lincoln, St. Louis, and the Minneapolis-St. Paul area.

"The next war, if there is one, will be supersonic. If our airmen are to fight supersonically, they'll have to train by flying supersonically on simulated combat missions," said Loyd Turner, who with his staff member, Mal Halloway, represents GD/Fort Worth at the briefings.

"Most supersonic missions below 35,000 feet are made in a special 20-mile wide corridor over the Gulf of Mexico," Turner explains. "The only harmful effect might be to give a few fishermen a bigger bang out of the sport than they expected."

A "tremendous assist" in telling the sonic boom story is "Tall Man Five-Five," a documentary film narrated by Chet Huntley. The film explains sonic booms as a Hustler moves in for a Mach 2 attack on Deerfield, Mass. General Dynamics made the film, with assistance of the Air Force and General Electric.

Literally millions of people have seen the film on SAC bases, in special showings throughout B-58 corridor cities and towns, and on television.

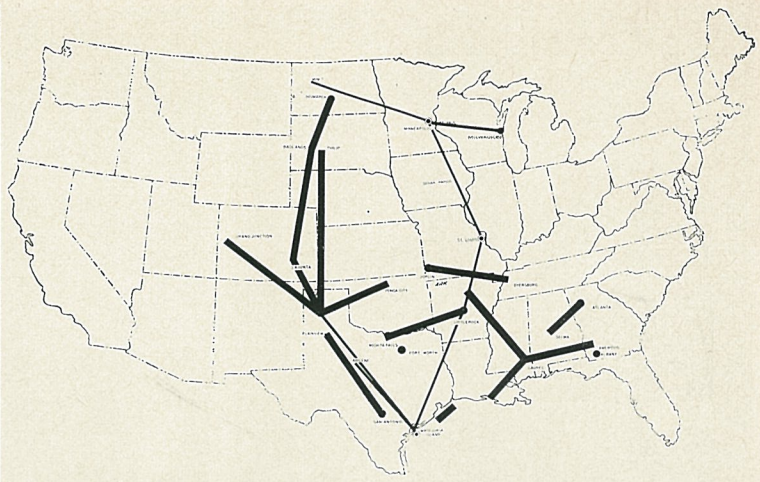
Lending mobile assistance to the sonic boom orientation program was an Air Force van which toured 15 communities in the corridor areas. It used illustrations, charts, brochures and recorded statements to give the cause and effects of booms.

In the briefings, Air Force claims officers stress that a sonic boom cannot cause structural damage to a house or building or injure a person because of the altitudes at which B-58s fly.

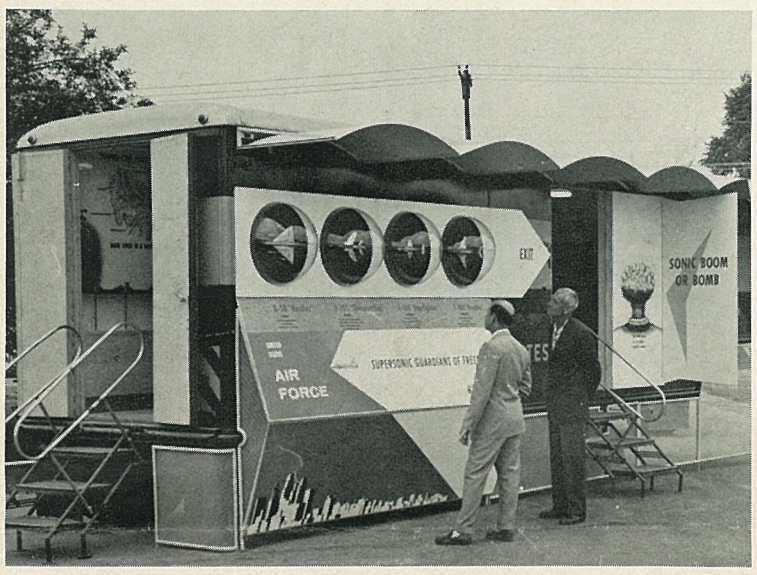
They explain that it takes overpressures of at least 70 pounds per square foot to cause structural damage. Pressure from a sonic boom under normal SAC operations is less than five pounds per square foot. The only way scientists have been able to generate pressures of more than 70 pounds per square foot was under the severest of test conditions, with an aircraft speeding by only 200 feet above a recording device on the ground.

Damage to some plate and window glass, light bric-a-brac, or loosely latched doors, plus some possible aggravation to existing plaster cracks, is about the extent of sonic boom damage, officers explain. Structural damage to foundations or load-bearing walls, they say, is practically impossible.

Easily discredited are claims like these: a man who said a sonic boom caused an earthquake that cracked his swimming pool; a woman who said six of her electrical appliances (eight years old) were ruined; another woman who claimed that she was criminally assaulted by an intruder who allegedly entered a door jarred open by a boom; and the one that booms caused chickens not to lay eggs and eggs not to hatch.



BOOM TOWNS—Black lines indicate B-58 corridors, in which Hustlers make supersonic sorties. Hundreds of civic leaders in various corridors were briefed on booms by GD/Fort Worth and Air Force teams.



PORTABLE STORY-TELLER—Air Force van with illustrations and recordings which told sonic-boom story, toured number of B-58 corridor towns.

Paddled by Mistake Due to Sonic Boom, Boy Earns Apology From Hustler Crew

The story ended happily, but for awhile it appeared that 10-year-old Harry Erickson of near Pittsburgh, Pa., had taken a real beating from sonic booms.

It happened, according to Jim Lucas of Scripps-Howard, when a B-58 Hustler made its record-making, round-trip flight from Los Angeles to New York run, leaving a trail of sonic booms in its wake.

It seems that Harry's father, Herbert Erickson, had forbidden the boy to leap from his bunk and bang his feet on the floor.

When the fast-flying Hustler passed nearly directly over the Erickson household, it left not one, but two distinct booms.

Interpreting the booms as another leap from the bunk, Harry's father paddled the boy, under protest of course.

But when the father learned the true cause of the booms, he quickly penned a note to the Pentagon that someone owed his boy an apology.

The Bendix-Trophy winning B-58 crew — Capts. Robert Sowers, Robert McDonald and John Walton—thought so too.

They wrote Harry a formal apology, enclosing an autographed picture and a B-58 model.

"We had excellent tailwinds all the way," the crew wrote. "We hear you did, too, and we're sorry about that."

NASA Chooses GD/Astronautics to Study Early Manned Planetary Explorations

General Dynamics/Astronautics is one of three firms selected by the National Aeronautics and Space Administration (NASA) to carry out studies of early manned planetary exploration.

Known informally as Empire (early manned planetary-interplanetary round-trip experiments), the studies will last six months. Astronautics will conduct studies of a Mars orbiting mission.

This does not mean that NASA has scheduled manned planetary flights, but is gathering a body of preliminary information for use if and when such a project is established, a release from Marshall Space Flight Center, Huntsville, Ala., indicated.

Studies assume a launch time of the early 1970s and the use of Saturn C-5 and/or Nova launch vehicles employing orbital operations and nuclear propulsion from earth orbit.

Under study are trajectory, weights and conceptual design, propulsion requirements, storage methods for hydrogen in space, life support systems, schedules, long leadtime requirements and funding.

Little League Help Comes Back Double

GD/Astronautics' Steve Losch (Dept. 305-0) boasts of the luck most of us would like to have—he bought three raffle tickets and won first and second prize!

Losch merely wanted to help the Spring Valley Little League raise funds when he purchased the tickets. A drawing held July 4 ended with him winning first prize (a Falcon automobile) and also second prize (an ice chest). Losch promptly returned the second prize.

Construction Proceeds On First Commercial Atomic Power Facility

Construction of the world's first nuclear power station, prototype of the High Temperature Gas-Cooled Power Reactor system conceived and developed by General Atomic Division, General Dynamics, is progressing rapidly at Peach Bottom, Pa.

It is designed to produce commercial electric power at high temperature steam conditions.

At the 600-acre plant site on the Susquehanna River, Philadelphia Electric Co., which will own and operate the 40,000-kilowatt (electrical) plant, reported site clearing, excavation and grading are virtually completed and the lower shell of the steel containment vessel already is in place.

Peach Bottom will be the first nuclear station to produce commercial electric power at modern steam conditions of 1,000-degree F. temperature and 1,450 pounds pressure.

The Peach Bottom plant also will be the first commercial nuclear power station to demonstrate the use of an all-graphite core and a peak fuel burn-up of 75,000 megawatt days per metric ton of uranium and thorium fuel.

The $24.5-million developmental construction cost of the plant is being borne by Philadelphia Electric and 52 other investor-owned electric power companies located throughout the United States and organized as High Temperature Reactor Development Associates, Inc. The 53 companies comprise the largest group of companies to support a U. S. nuclear power project.

Construction at the Peach Bottom site began late in February under a 27-month construction schedule calling for completion of the plant in mid-1964. The site is nine miles above Philadelphia Electric's hydroelectric station at Conowinge, Md.

The lower shell of the plant's circular steel containment vessel, which will enclose the HTGR reactor and nuclear steam supply system, is in place in the ground and workmen are now erecting a reinforced concrete wall which will separate the containment vessel from the plant's turbine building.

The steel containment vessel, 100 feet in diameter, will rise 135 feet above the ground when completed. The upper part of the vessel will not be erected until the reactor, steam generators and other interior equipment have been installed.

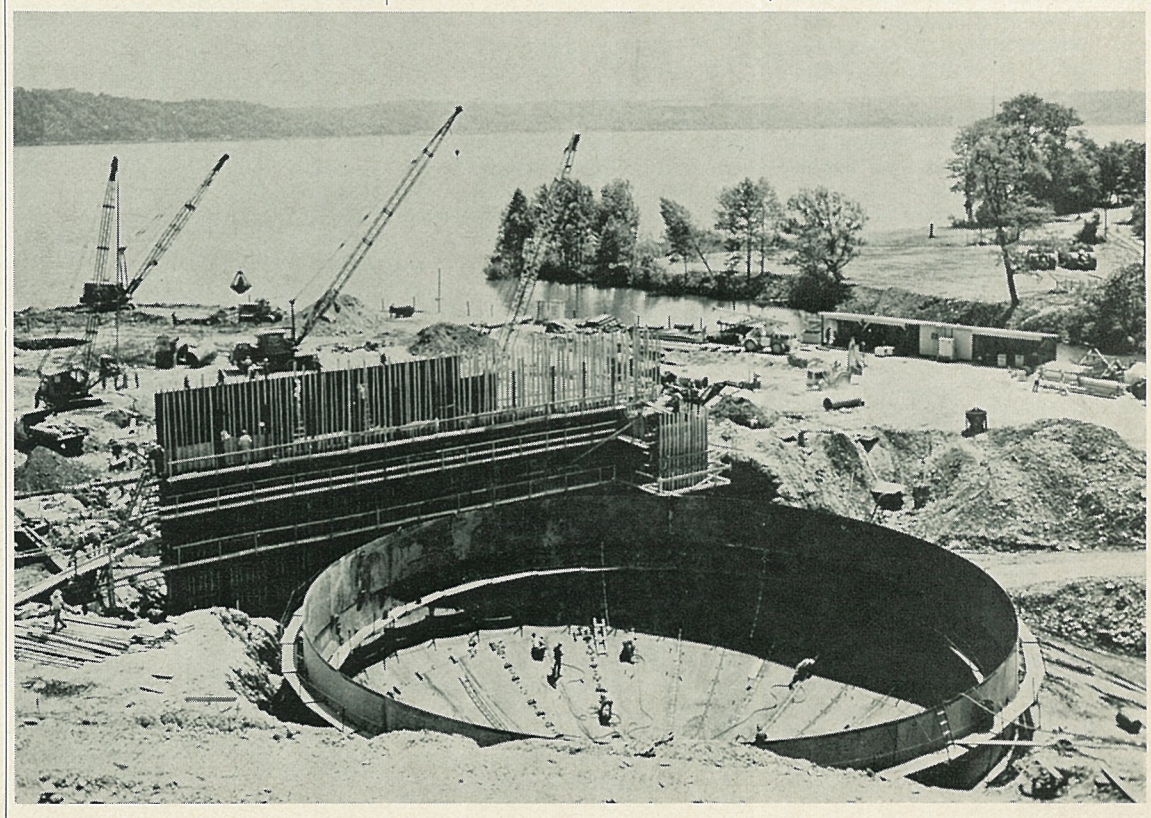
General Atomic is responsible for the nuclear plant. Bechtel Corporation is engineer-constructor.

SAFETY PRACTICES AT GD/ASTRO TOLD

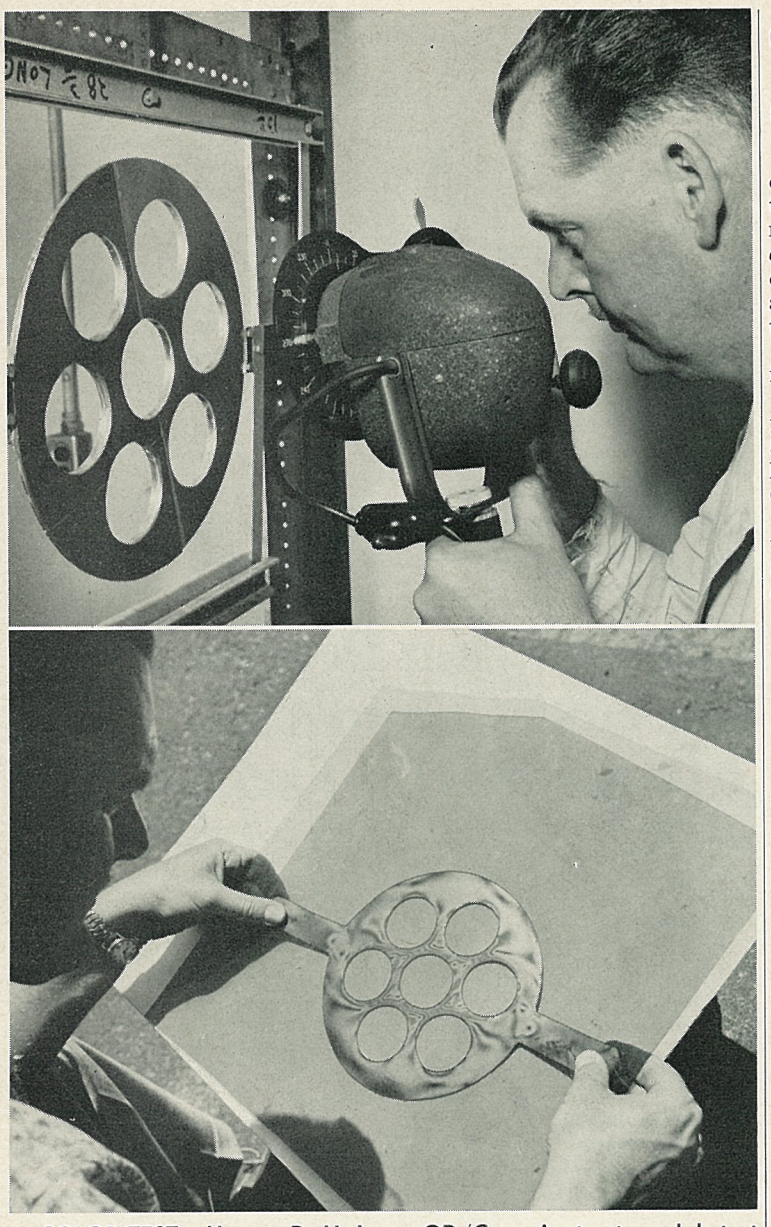
Mortimer Rosenbaum, General Dynamics/Astronautics executive vice president, presented a special talk on safety practices at Astronautics June 27 at a meeting called by the commander of the Ballistic Missile Division.

The one-day affair, held at BSD Headquarters, Inglewood, dealt with safety programs and practices developed by major aerospace industries involved in ballistic missile work for the Air Force. Other top industry officials gave similar reports.

In addition to Rosenbaum, Astronautics was represented by P. M. Prophett, director of base activation, all of Astro's operational base operations managers and J. W. Garrison, chief safety engineer. SATAF commanders from all ballistic missile bases also took part.



WORLD'S FIRST—On banks of Susquehanna River, construction of world's first atomic power station proceeds. Circular containment vessel, 135 feet high, will enclose HTGR reactor and nuclear steam supply system developed by General Atomic Division of General Dynamics.



COLOR TEST—Upper, D. H. Love, GD/Convair structures lab test engineer, peers through photostress meter at 1/10th scale model of Little Joe II bulkhead to measure stress by colors appearing under load. In lower shot, Love bends plastic model to make stress patterns clearly visible through sheet of polaroid.

Midget Little Joe II Bulkhead Put Under 'Rainbow' Stress

Rainbow colors are helping General Dynamics/Convair engineers determine points of stress in components that will go to make up Little Joe II launch vehicles, now under development at GD/Convair.

The miniature aluminum bulkhead, 1/10th scale, is in photostress testing at the GD/Convair fatigue test lab to pinpoint critical high stress points by use of the color process.

As the model, coated with a thin layer of special plastic, is twisted under bending loads, patterns form—either light and dark, or in various colors—indicating strain areas. The colors, when viewed through a photostress meter, are graphed according to known principles of polarized light to measure stress.

"This method of determining critical areas of stress allows us to simulate stiffness and configuration of a component without building an actual part," said Ed Schiff, structures lab assistant group engineer.

"It provides a quick and accurate method of analysis in terms of strain and load for use by design engineers."

A smaller 1/20th scale flat plastic pattern of the bulkhead's surface shape is used as a general demonstration model with colors indicating "fringes," or patterns of stress, clearly visible through a sheet of polaroid.

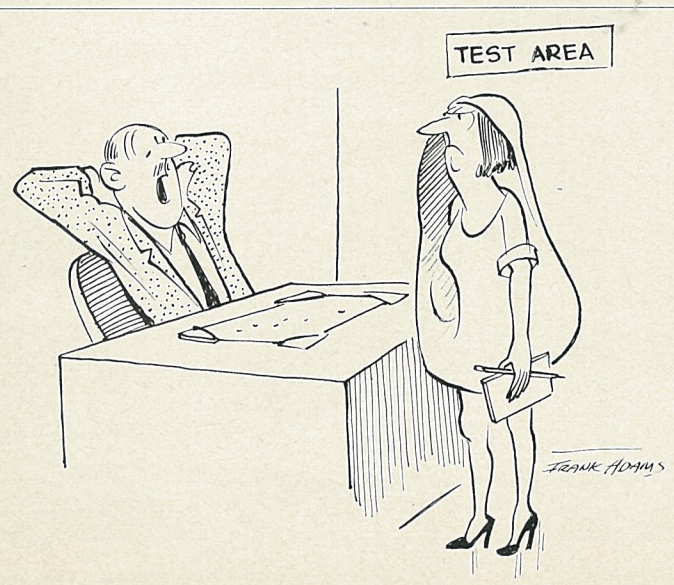
The same testing method has been in use at GD/Fort Worth and GD/Astro the last few years and was applied during fatigue testing of landing gears and skins for Convair's jet transports.

F-102 Landing Gears Face Fatigue Tests

Structures laboratory at General Dynamics/Convair will be cycling F-102 landing gears during the next few weeks to check Air Force required changes.

Under a recent contract from the AF, amounting to $12,651, GD/Convair will fatigue test two of the modified main landing gears destined for installation on Convair-built F-102s in the field.

The program, extending over a couple of months, will fatigue test the gears to failure or 20,000 cycles. Gears, built by Menasco Mfg. Co., Burbank, Calif., were due to arrive at the San Diego laboratory facility the middle of this month.



"Another thing, Miss Christy . . . Let me know immediately the next time that wind tunnel crew starts giving you a rough time!"

GD/Astro Engineering Writer Owns U.S.'s Only (?) Coffee Plantation

A borrowed dream, his wife's encouragement, and an eye for the unusual have combined to make Harold V. Stickel of General Dynamics/Astronautics, owner and operator of what is probably the only U.S. coffee "plantation."

Stickel, an engineering writer in support systems engineering (Dept. 321-2) at Plant 1, has 200 young adult coffee trees and over 5,000 seedlings growing on his hillside property in La Mesa, Calif.

This year's coffee bean output will go for seed, and next year Stickel hopes to place his coffee on the commercial market.

Stickel bought his "plantation" from the estate of the late Nick Wornin, horticulturist and former El Salvador plantation owner, who for ten years dreamed of introducing coffee culture to the United States.

Wornin brought seed stock from his El Salvador plantation and had attempted to raise it in Florida and later in another part of California before succeeding in the La Mesa location.

Upon the death of his friend, Stickel determined to carry on Wornin's dream and purchased the property. His wife, Marie (former GD/Convair Dept. 120 employee) was raised on a coffee plantation still owned by her family in central Mexico, and encouraged the undertaking.

Present producing stock flourishes beneath the high shade of chirimoya trees (a South American tree in itself unusual in this country) on a terraced hillside behind the Stickel home. The three-year-old coffee trees are now about five feet tall and will never grow so high that harvesting cannot be done from the ground.

Coffee berries, each containing two beans, look like dark red cherries and stud the branches in clusters. Berries are picked when ripe, dried in the sun and husked. The beans are then roasted and ground en route to the coffee pot.

Coffee-wise Marie recalled customs of her youth, remarking that plantation owners seldom brew coffee from pure coffee beans.

"My mother often grinds a bit of cinnamon or cocoa with the coffee beans," she said. "Either adds to the flavor."

Of the seedling trees, with which he hopes to expand his coffee growing operation, Stickel has a wealth of information.

"Their culture gave Wornin his greatest headaches," he recalled. "Each bean must be carefully positioned to permit sprouting and planted in an exacting combination of moisture, well conditioned soil and fertilizer.

"Then climate for early growth becomes the critical factor. Wornin chose La Mesa because of its even year-round temperature and similarity to the climate of El Salvador."

And the curious flora of "El Rancho Stickel" surpasses the unique planting of coffee and chirimoya trees (whose fruit, Stickel said, tastes like vanilla ice cream). Marie pointed out miniature banana trees whose fruit is of normal size with unusual sweetness, and several sturdy papaya trees.

"It's quite a place," Stickel chuckled proudly. "Now you take those three pineapple plants over there . . . "

CROP—Mr. and Mrs. H. V. Stickel of GD/Astro examine one of 200 young coffee trees on property in La Mesa, Calif. Coffee fruit looks like dark red cherries, each containing two beans which are dried, roasted, then ground.

GD/E Awarded Battlefield Radar Study

A $100,000 study contract has been awarded General Dynamics/Electronics at San Diego by the U. S. Army Signal Corps at Fort Monmouth, N. J.

During the study, to extend over the next year at least, GD/Electronics engineers will research in development of new techniques for effective employment of radar in battlefield situation.

Project engineer in charge of the studies will be David Proctor of GD/E advanced microwave group, said D. Wahl, GD/E manager of engineering.

The contract was awarded GD/Electronics as an outgrowth of the division's previous studies into developing high resolution techniques for surface radar systems.

Keith Benson Talks For UCLA Seminar

Keith Benson, group engineer at General Dynamics/Pomona, was one of five Southern California engineers invited to address a recent seminar at UCLA.

The seminar, sponsored by the UCLA school of engineering, involved "Information Display Systems." Benson spoke on "System Engineering Methods and Procedures."

"It's All in Books"

Self-Taught Math Instructor Looks Back on 1,200 Students

E. B. Schick, GD/FW Dept. 24-2, is "retiring" this month into a long-postponed second career as school teacher.

The "self-educated" tool designer, a GD/Fort Worth employee since 1945, plans to teach shop math through the vocational program at Technical Institute.

It won't be a new role for Schick, as well over 1,200 present and former GD/Fort Worth employees can testify.

"He's taught this course—involving plain geometry and trigonometry as it relates to designing engineering parts—to at least this many people since he was first 'drafted' for the job in 1948," a former supervisor said.

"He was selected because everyone—his fellow employees, supervision, and engineering—respected his knowledge of math as it related to tool designing."

He was such a good instructor, the supervisor pointed out, that he's had to teach the same course off and on ever since.

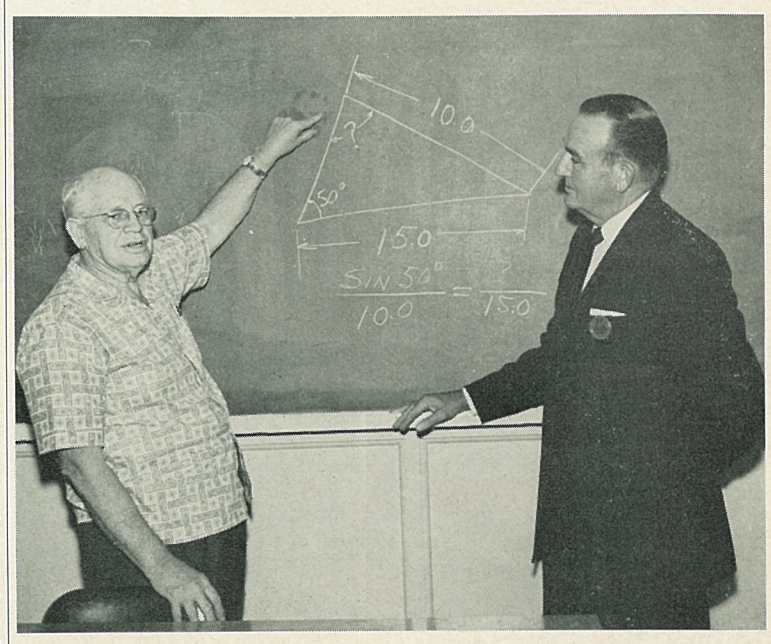
The self-taught Schick is, in a sense, resuming a profession he started in 1915.

"I taught in a little rural school in Georgia," he said. "This included grades one through 11. I also did a little teaching in Tennessee."

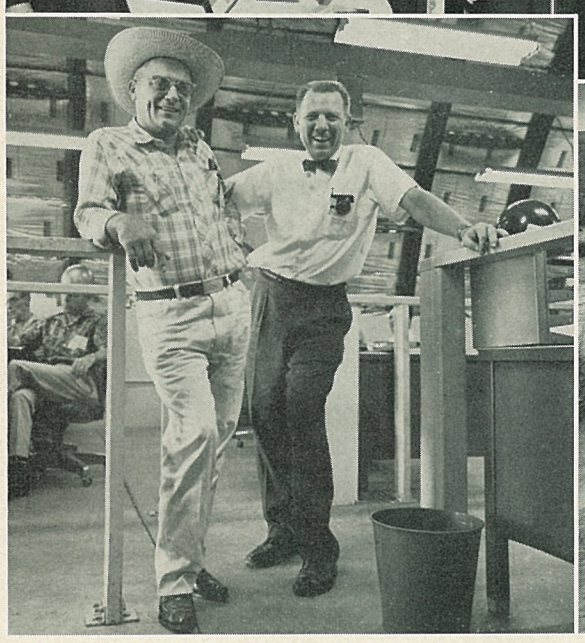
Schick was hasty to add that education in rural areas in those days was a pretty informal affair.

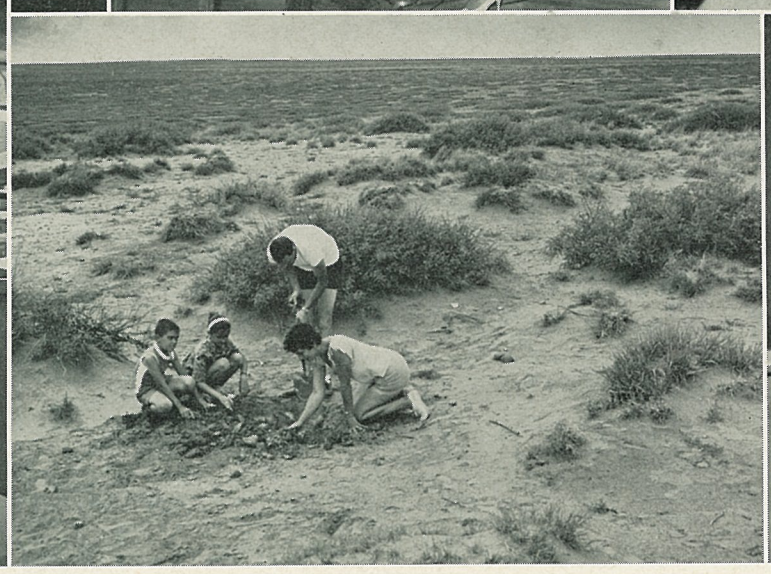
How does a self-taught man like Schick—who talks like a college graduate—acquire his knowledge?

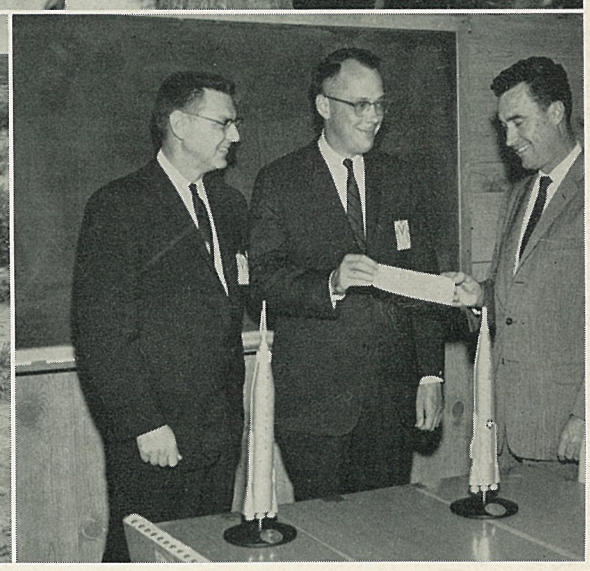
"It's all in books," he said. "All you have to do is read."



SELF-MADE—E. B. Schick, Dept. 24-2, displays teaching technique—familiar to over 1,200 GD/FW employees—to F. E. Chambers, GD/FW director of industrial relations. Schick plans "second" career of teaching when he retires this month.







ROUNDING THE BASES—Party arranged by GD/Astro Wives Club of Lincoln AFB drew happy throng of 1,000 to Plamor Ballroom in Lincoln, Neb. In top center, Irene Peters, June Strous and Phyllis Walsh engage in skit on feminine view of Atlas base activation. At top left Robert McGraw collects grand prize of tape recorder. Behind him are members of dance committee, Miriam Lundy, Betty Grundstrom and Ernie Mudge, with emcee Bob Verdon at mike. Lower left: J. N. McPheeters, GD/Astro operations manager at Altus AFB, in "native" costume, drops by for chat with Bob Longino, supervisor at Atlas Site 2. Lower center: amateur archaeologists have field day in Walker AFB area where Indian relics abound. John Taylor (Dept. 619-5), wife, Lois, and children, Mark, 7, and Tanja, 10, do some digging. Lower right: L. I. Medlock, right, GD/Astro operations manager at Lincoln AFB, presents $4,280 check from Con-Trib-Club to Willis Johnson, Lincoln Community Chest, and J. C. Angle, United Appeal drive chairman. Astro employees, through Con-Trib, have donated nearly $30,000 in Lincoln-Omaha area during three years of base activation operations. Con-Trib donations at Nebraska base have approached the $10,000-mark during this year alone.

BSD Commander Award Goes to Technician Who Prevented Atlas Loss

LINCOLN AFB — Richard A. Seibert, a General Dynamics/Astronautics technician here, has been awarded the Ballistic Systems Division Commander's Award by order of the commanding general.

The award, a special commendation, recognizes distinguished service performed by Seibert during operations here. It read, in part: "Seibert evaluated an impending emergency in a unique manner and reacted with such swift action that he prevented certain destruction of an Air Force Atlas missile and probable injuries to five fellow employees.

Lt. Col. Hubert E. Miller, deputy SATAF commander here, presented the award on behalf of Maj. Gen. Thomas P. Gerrity, then BSD commander.

The event mentioned ocurred at Offutt AFB when Astro personnel were conducting operations on Atlas complexes there.

General Gerrity's statement added that "Through outstanding judgment and action Mr. Seibert has brought credit upon himself, his company, and the United States Air Force."

Wives 'Splash Party' Held at Schilling

SCHILLING AFB—Straw hats and colorful bathing suits were the costume for 35 members of GD/Astro Wives Club here at a recent "splash party" at the base Officers Club pool.

Light refreshments were served.

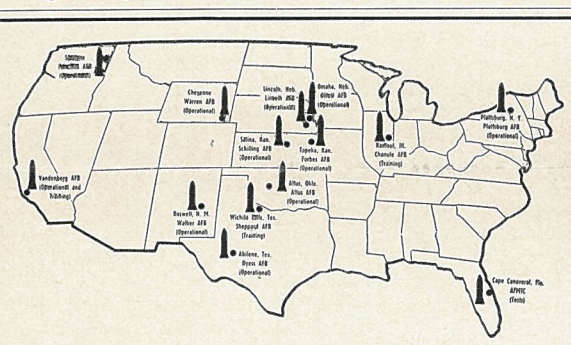
WIFE'S-EYE VIEW OF BASES LIVENS LINCOLN PARTY

LINCOLN AFB—A wife's-eye view of Atlas base activation was featured in skits by Astro Wives Club as intermission entertainment for over 1,000 GD/Astronautics employees attending a company dance here last month.

The event was held in Plamor Ballroom, Lincoln, under joint sponsorship of the Wives Club and GD/Astro supervision, with a Sunday night date enabling both first and second shift employees to attend.

Dancing throughout the evening was climaxed by drawings for a variety of door prizes, with Robert McGraw of support publications winning grand prize of a tape recorder.

Bob Verdon, communication administrator, was master of ceremonies.



OFF-SITE NEWS

AFMTC—R. E. Flanagan, ext. 4011.
ALTUS—Jean Foster, ext. 669.
DYESS—G. D. Higgins III, ext. 8370.
EDWARDS RS—Chris Marques, ext. 27.
LINCOLN—Maxine Utley, ext. 412.
PLATTSBURGH—Elly FitzPatrick, ext. 6281.
SCHILLING—Laine Browne, ext. 213.
SHEPPARD—Steve Delbridge, ext. 8243.
VANDENBERG—Lucy Signorelli, ext. 8-5046.
WALKER—Rod Bricker, ext. 603.

ADDED EFFORT—Lt. Col. Hubert E. Miller, deputy SATAF commander at Lincoln AFB, presents Commander's Award to Astro's Richard A. Seibert. Seibert was cited for quick action that prevented loss of Atlas missile and possible injury to fellow employees during Offutt AFB operations. In light colored coat is Don Hamm, chief of product support. Others are fellow employees at Lincoln AFB.

Tommie Zannes Memory Occasions Cancer Gift

VANDENBERG AFB—General Dynamics/Astronautics employees here, through action of their Con-Trib-Club, have created a memorial to a former boss and fellow employee—Tommie Zannes.

Last month $10,000 was presented to the American Cancer Society as a "Tommie Zannes Memorial Gift." It was the largest gift ever made to the Society in Santa Barbara County and represented an average contribution of $7 per Astro employee here.

Zannes died three months ago of cancer.

Robert Hughes, missile electronics technician and Con-Trib-Club Committee member, presented the gift to Peter Bakewell, campaign chairman responsible for Santa Maria and Lompoc.

"We offer this gift in the name of Tommie Zannes out of affection for our former boss, a man of real humility and compassion, and a truly great American," Hughes said.

A two and one-half minute film, produced by Tom Jaqua in cooperation with Con-Trib-Club and the Astronautics motion picture section, was shown locally on television outlets.

It traced Zannes' career, covering his work as test conductor (at Cape Canaveral) on the first successful Atlas missile launch and subsequent successes. It also showed him as manager of Astronautics operations here, his last post before being stricken with lung and brain cancer in 1961.

One statement, made by a former associate, summed up the feelings here for Zannes: "Tommie Zannes was popular for many reasons. One was his overt patriotism. He worked first for his country, secondly for Astronautics, and lastly for himself."

★ ★ ★

LINCOLN AFB—Appreciation for this area's hospitality during Atlas base activation operations has been shown by General Dynamics/Astronautics personnel through their Employees' Con-Trib-Club.

Over three years' time, Con-Trib-Club has disbursed nearly $30,000 to United Appeal and other charitable organizations in the Lincoln and Omaha areas.

This year's gifts total $9,000.

CHAMP TEAM—Support Documentation volleyballers line up with trophies after capturing IRC title with three straight wins over Spacemen in play-off. Snapped at award night barbecue in Pecan Park are (standing), from left, Ray Mendoza of ARA, Tony Heintz, Bob Mallgren, Jim Simley; (seated) Pete Beyrer, CRA commissioner, Reno Bernardini, George Vogt, Bill Creamer. All are from Astro Dept. 337 except Creamer of GD/Electronics.

Dynamics Teams Win Trapshoot and Skeet

General Dynamics sharpshooters captured the lion's share of awards at the annual Industrial Recreation Council Gun Shoot July 1, winning two of three events.

Nearly 150 people including 68 participants at Gillespie Field Range saw GD teams win both the skeet and trapshoot events while Rohr swept the rifle match. Commissioners Jack Swank and Ezra Johnson of host CRA-ARA Gun Clubs termed the affair "highly successful."

GD's team of Jim Field, Ken Wulfemeyer, C. W. Pharis of GD/Convair, Jim Hartman, GD/Astro, and W. E. Rickman of Prophet Co., shot 221 out of a possible 250 to edge SD Gas Co. with 217 in skeet. Both teams collected individual trophies. Third place went to GD/Astro Management Club team shooting 200. Rohr followed with 163.

Trapshoot honors and the perpetual team trophy went to a GD team including George Anderson and Warner Gatterman of GD/Astro, Howard Jacklin of GD/Electronics, Jay Cushman and Jack Rogers, GD/Convair, winning easily with a 235 score. GD/Astro Management Club and another combined GD team tied for second place with identical scores of 211, nosing out Aetna Insurance at 210.

The GD combine of George Clayton, Eldon Carpenter, Joe Butera, Ken Beadle and Edward Sullivan, overpowered Astro Management Club in the shoot-off, 111 to 102, to earn individual trophies. Third place trophies went to Astro Management Club's Blas Vargas, Roy Cunningham, Ezra Johnson, Jerry Schultz and Jim Hartman.

Highlight of the day was the Gatterman family performance. Warner shot 49 out of 50 to tie George Clayton for men's honors while his wife, Edna, shooting for Aetna Insurance, triumphed over the ladies with 44 hits in 50 tries.

Mexico Tour Now Forming

Prospective tourists from GD/Convair, GD/Astro, and GD/Electronics, and their families, may put their names on the list now for a two-week trip by train and bus into the interior of Mexico.

The tour, arranged especially for General Dynamics people, is slated for the last two weeks in August. It comes as conclusion of the current "tourist" Spanish language course now being taught by Jim Hardison of GD/Convair Dept. 15-0.

However, Hardison said that anyone in San Diego facilities may join the tour, regardless of whether they were enrolled in the language course.

Package price will be $350 a person, if 30 or more sign. Departure date is Aug. 17 from Mexicali. Pullman accommodations will be arranged, with air conditioning, and catering for two meals.

An overnight stop will be made Sunday at Guadalajara, with the group entraining Monday evening for Mexico City. After seeing the sights in and around the capital city, the tourists will go by bus to Acapulco and return. The trip will wind up with a visit to Puebla, industrial center and site of glass and pottery making.

Return date at Mexicali will be Sept. 2.

Anyone interested may reach Hardison at his home phone, BR-6-5805, after 7 p.m.

Salvage Yard Dates In July, August Set

Employee sales days at GD/Convair and GD/Astro salvage yards for the next four weeks are:

GD/Convair—July 21, Aug. 4.
GD/Astro—July 28, Aug. 11.

Yards are open at both Plant 1 and Kearny Mesa sites on an alternating Saturday schedule, 8 a.m. until noon.

PLAYBOYS!—CRA cameramen surround "Miss Photorama" (Fran Rooks) in Convair club's prize-winning set, simulating Playboy Magazine cover, at recent Balboa Park contest. From left are Ron Ainsworth, Whitey Claxton, Howard Harvey, Leo Vigneault.—Photo by Les Blakely, Astro Lens.

Sailplaners Open Summer Soar Season

A clear, warm day greeted San Diego sailplane pilots as they traveled to Elsinore to lift off the summer soaring season with a two-day meet at Skylark Field June 30-July 1.

"Weather conditions provided lots of thermals to 5,000 and 6,000 feet above sea level to make for good gliding," said Gene Whigham, CRA Glider Club commissioner, whose group, in its affiliation with the Associated Glider Clubs of Southern California, sponsored the event.

Whigham was in the money both days, taking a second place in Saturday and Sunday tasks. Saturday's chore was to complete as many circuits as possible around a triangular 57-mile course starting at Elsinore with turn points at Jack Rabbit Pass and the Ramona Bowl. Time limit was three hours—from 1 to 4 p.m.

Flying his original design home-built sailplane, Whigham glided to earth when he lost his thermal on his second lap around. His 70-mile run was bettered by George Tweed, now of Cubic Corp., who kept his glider afloat for six more miles.

Third place went to Duke Stallings of GD/Astro who managed to reach the starting point before the deadline in his modified Schweizer TG-2.

The next day, Whigham came in just two miles behind the winner over a similar course with turn points at Valley Vista and a highway crossroad landmark. Jack Green, flying Tweed's sailplane, made it around the 52-mile course twice to mark up 109 miles; Whigham made 107 miles; and Stallings was third again with 61 miles.

Other contestants were Jim McCarrier, flying a home-built Cherokee glider, Larry Erickson and John Walker, both flying Schweizer 1-26s.

Gene Cain of GD/Astro served as starter and tow plane pilot.

Engineering Review Course Offered by Calif. U. Extension

General Dynamics engineers in California intending to take professional examination for mechanical engineers this fall are reminded of a special review course beginning next week.

Registrations are now being accepted by University of California Extension office for the course starting July 26.

This course includes a review of fundamentals in the fields of strength of materials, thermodynamics, fluid mechanics, heat transfer, dynamics, engineering economics. It helps prepare applicants for the Nov. 17 professional examination offered by the State Board of Registration for Civil and Professional Engineers.

Before students can enroll in the course, they must have had at least two years of experience in a responsible position, said Carl G. Erickson of GD/Astro, class coordinator.

Juniors Spotlighted By ARA Coineers

Young collectors will be spotlighted at tonight's (July 18) meeting of ARA Coineers, when their activities receive special attention, and an auction is held for their exclusive benefit.

The meeting is slated for 7:30 p.m. in the ARA Clubhouse.

A movie, "The Universe," will be shown, and display theme will be "My Favorite Coin and Its History." A coin auction for adults is also planned.

Second-shift members of Swing Shift Coin Club will meet at 1:30 a.m., July 19, also in the ARA Clubhouse. Their program includes a "swap session" and showing of the movie "Friendship 7."

GD/Convair Son, Skating Champ, Seeks National Senior Title

Winning titles is becoming a habit with John Renz, "free wheeling" son of L. J. Renz, GD/Convair Dept. 25.

A whiz on wheels since he took up roller skating at the age of 12, John will compete for the national senior men's singles championship this month.

He will be spinning and whirling with leading skaters from the United States, Hawaii, and Canada at the July 29 competition in Lincoln, Neb. Thirty-two first through third-place winners will represent eight regions in this country, one each in Canada and Hawaii.

John won the right to be numbered among top contestants by sweeping the field in senior men's singles at the California regional meet June 29 in Oakland, Calif.

Climbing up the trophy ladder, he won both the state regional and national junior titles in 1960 and repeated the same performance for regional and national intermediate honors the following year.

The GD/Convair son, 17, will be a senior at Lincoln High School in San Diego this fall.

ON WHEELS—John Renz, GD/Convair son, heads for top national roller skating competition. Photo was taken at Fort Worth last year where he won national intermediate.

Ladies Active In Pistol Club

ARA Pistol Club will hold a shooting session at 9:15 a.m., July 22, at San Diego Police Pistol Range, Home and Federal Avenues.

Bill Geopfarth, ARA commissioner, reports three ladies are among club members now firing regularly with the group. One of them, Marian Bonagura, won her first club match in the early July shoot.

Marian fired 237 in marksman class of a .22 Camp Perry Police Course contest to win over a 220 score by Ralph Jungk.

Master class winner in this event was Ronnie Legg with 293 of a possible 300 points over Ralph Sanderlin's 278, while Roscoe Anderson fired 282 and Mort Williams 278 among the experts. Les Vivian led sharpshooters with 267, trailed by John Bennett with 242.

In a .22 Short National match Legg edged J. S. Knutson 280 (5-X) to 280 (4-X), while Harold Sicard fired 276 and Geopfarth 273.

FIVE SONS FORM GONZALEZ' 'TEAM'

J. G. Gonzalez, GD/Convair manufacturing control, is raising a baseball team.

Gonzalez, treasurer and manager of Twin Hills Little League, boasts four sons on the team and another expected to qualify soon. They are Joe Jr., 11; Carlos, 10; Frankie, 9; Willie, 8; and Ricky, 6. Ricky is being groomed as a pitcher and already can fire the ball with amazing accuracy.

The Gonzalez family is also represented in the stands where Mrs. Gonzalez and daughters Ofelia, 3, and Rosemary, 2, are regular rooters.

Charm School Set For Ladies, Teens

Two teen-age classes and an adult class in ARA's continuing series of self-improvement courses for women will open next week under direction of professional model and charm school instructor, Sherry Miller.

Teen-age classes will be held Mondays with the first sessions July 30. Two meeting times—2 to 4 p.m., and 5 to 7 p.m.—are available.

The women's class opens July 31 and will meet Tuesdays from 7 to 9 p.m.

All courses are run as a nine-week series with two hours' instruction each week, for a total of $25. All meetings are in the ARA Clubhouse.

Additional information is available from ARA Headquarters, ext. 1111.

SHOW TO OCCUPY ARENA ON JULY 22

An all-day horse show will be featured in the riding arena of ARA Recreation Area starting at 9 a.m., July 22. There is no admission charge for spectators.

The show, with 20 scheduled events including horsemanship classes as well as gymkhana features, will bring participants from throughout the San Diego area.

During the noon intermission hay wagon rides for children will be provided by ARA Riding Club which hosts the show.

Carol Jackson is show manager, and Don Brannan, director. ARA commissioner is Art Smith.

BASEBALLERS—GD/Convair's J. G. Gonzalez poses with his baseballing sons, Ricky, Frankie, Willie, Carlos and Joe Jr.

WAVE RIDERS—ARA Water Ski Club's July 4 competition found girls at right (Elsie Christopher, first; Dottie Blomke, second; Ginger Fleming, third; Molly Hutton, fourth; and Doris Pountney, fifth) collecting trophies. At left men winners (Sam Pountney, Clarence Weiler, ARA Commissioner Bill Johnson, Paul Cook and "Mitch" Mitchell) pose with girls. Center is beach scene with skiers resting up from exercise. Fifty-three skiers took part in annual competition.

Skiers Observe 'Ladies Day'

It was "Ladies Day" at ARA Water Ski Club's annual Fourth of July ski meet, with top contenders in women's class leading their counterparts in the men's category with an aggregate 121 points to 104.

Fifty-three skiers took part in the three-hour event on Mission Bay, with scoring on a points-per-ride basis. Trophies went to leading five scorers in both men's and women's classes.

High point scorer for the day was Elsie Christopher with 27, while Dottie Blomke and men's class winner Sam Pountney scored 26.

Other ranking women skiers were Ginger Fleming (24), Molly Hutton (23) and Doris Pountney (21).

Following Pountney in men's competition were Clarence Weiler (20), ARA Commissioner Bill Johnson (20), Paul Cook (19), and "Mitch" Mitchell (19). Final rankings were determined when Weiler edged Johnson by three points in a "ski off" for second, and Cook topped Mitchell by two points in another tie-breaking ride for fourth.

Water Ski Club has scheduled another meet for Labor Day.

ROCKHOUND PICK AWARDED BY CLUB

Attendance and participation are rewarded monthly by ARA Rockhounds with the presentation of a rockhound pick to a club member.

While actual selection of the winner is by drawing, he must first have qualified on a number of rigidly defined points.

Since Rockhounds is a family organization, at least one member of the candidate's family must have participated in a club activity during the month preceding the drawing, and must have taken part in a grand total of five club events (field trips, meetings, workshops, etc.) to become eligible.

Finally, the candidate must be present when his name is drawn to receive the award.

ARA Rockhounds is open to all GD/Astro employees and members of their families.

Sports & Recreation

Plant League Softball Rivalry Waxes Fierce

Rivalry in ARA Plant League softball is fierce as play in five leagues nears the mid-point in second round competition.

Thirty-one teams remain active with three eight-team first shift leagues and two second shift leagues in operation.

Top contender in National League play at press time was Depot (Dept. 340) with eight wins and one loss, while Atlas (Depts. 551-452) had a 7-2 record. American League leader is unbeaten Checkouts (Dept. 773) with one tie, seven wins, while Sparkies (Dept. 782-783) stand at 6-2.

Centaurs (Dept. 960) and Chasers (Dept. 200) hold matching one tie, six wins, one loss records in the All-Star League, with Misfits (Dept. 343) close behind with a tie, four wins and three losses.

Tied for first in the second shift Daylite League are Cosmo Bums (Depts. 756-783) and Midniters (Dept. 758) with one tie, three wins, one loss standings. Thumpers (Dept. 771) have a 2-3 record for second place.

Comets (Dept. 250-1) lead the Sunshine League with six consecutive wins, while Bloopers (Dept. 550-4) are second with a 4-4 record.

Arts, Crafts Group Forms

An organizational meeting for an arts and crafts activity under ARA sponsorship is slated for 7:30 p.m. July 26 in ARA Clubhouse.

Subjects to be discussed include interest in sketching, water colors, oil painting, cartooning, pottery, ceramics, pastels, murals, etc. Other forms of art may also be covered, if interest warrants. Also under consideration will be possible instruction sessions in any or all of the forms included.

D. A. George (Dept. 783-0) will supply details to those calling ext. 4150.

Lost Craters Talk Slated for Meeting Of Explorers Club

An unusual program at the business meeting, and a special field trip are on the July agenda of ARA Explorers Club.

San Diegans Howard Fisher and Bob Williams will describe explorations of a newly discovered area of Mexico at the meeting at 7:30 p.m. today (July 18) in the ARA Clubhouse.

They have conducted a series of expeditions under sponsorship of the local section of Archaeological Institute of America to newly-found craters in a remote area of northwest Sonora, Mexico. They will discuss their trips and show slides and a movie at the Explorers Club meeting.

New members and guests have been invited to this meeting by Larry Beaver, ARA commissioner. A discussion of club trips for the coming months is also on the meeting schedule.

Club members and their families will leave July 21 for a two-day trip to Puerto Santo Tomas, 115 miles south of San Diego in Baja California. A Mexican guide will meet the group at its destination to lead members through caves seldom seen by U.S. visitors.

Additional information on the trip is available from Paul DuPre, Plant 2 ext. 1479.

Club Displays Prize Exhibit

Now displayed in the lobby of ARA Clubhouse is the prize-winning space flight exhibit of ARA Stamp Club which took third place honors among topical collections at the recent San Diego County Fair.

The display includes contributions from Don Thompson, club president, Bill Bowen, Marshall Hurlich and Haydon LaNois. Background against which the stamps are shown was designed and prepared by Mrs. Thompson.

Fair honors also went to individual entries by members of the ARA club.

First place for a topical exhibit of four frames on the theme "Music on Stamps" went to Mrs. Hurlich, while a five-frame specialized exhibit of provisional stamps of Israel won a second place for Fred Lawson.

ACTIVITY AWARD—Walter Pauls, ARA Rockhounds vice president, presents rock pick to Frank Smith at recent meeting. Drawing for award is held monthly with participation in club activities determining eligibility for prize.

ARA Family Day Set For Aug. 26

Astronautics Recreation Association has selected Sunday, Aug. 26, for a special family day of fun to be held in ARA Recreation Area adjacent to the main plant.

Billed as "ARA on Parade," the event begins at 11 a.m. and continues until 10 p.m.

While plans are still being formulated, decisions have been made on enough points to assure every family entertainment. There will be static and live displays featuring ARA-sponsored activities from astronomy to water skiing. Families may see these groups in action, meet the people responsible and ask questions.

A polka band for dancing and square dance sets for do si do enthusiasts will be included.

Prizes for all ages will be very much in evidence. Drawings for children's prizes will occur frequently as will special drawings for employees. A 21-inch color television console will be grand prize for employees with periodic drawings for portable transistor radios.

Topping off the day will be a giant barbecue.

Except for the barbecue and refreshments, everything will be free.

A unique brochure outlining ARA and its activities has been prepared for mailing to the homes of all employees. A special insert will explain "ARA on Parade" and include a ticket stub employees must bring to the Area to be eligible for prizes.

J. T. "Jerry" Schultz, veteran employee services representative, heads an ARA Employees' Council committee planning the event.

"Our Area, and especially our ARA Clubhouse, has reached a stage of completion to warrant this event," said Bryan Weickersheimmer, ARA president. "Thousands of volunteers have made the facilities possible. We would like to recognize their efforts and at the same time acquaint all Astro families with the many spare-time activities available to them through ARA."

2,300 Attend Annual Picnic In ARA Area

More than 2,300 persons gathered in ARA Recreation Area July 4 when Depts. 782 and 783 held their annual picnic. D. A. George headed the planning committee.

Entertainment included a wheel chair square dance by Wheelacades, a magic act by Ernie Medina (Dept. 781) and comedy routines by the Lo Fi Combo, a group from the ARA-sponsored Hi-Fi/Music Club. Dance music was furnished by the Powerhouse Regal Five.

A. C. Pranskevich (Dept. 782) won the adult raffle grand prize, dinner and champagne for two at a leading night spot.

Softball competition found Dept. 782 downing Dept. 783 by a score of 20-8.

'Music Man' Benefit Tickets Available

Exchange tickets for the premiere west coast showing of "Music Man" (the film version) are now available through GD/Astro's employee services office in Bldg. 8.

Scheduled for 8:30 p.m. July 24 at the Fox Theater, the event will benefit Boy's Clubs of San Diego. A dinner will precede the event at the new Ocean House. Dinner tickets are $6 each. Show tickets are either $5 or $10 each, depending upon location, and must be purchased before dinner tickets.

Arrangements may be made to send exchange tickets to other employee services outlets on request.

ARA Calendar

(GD/Astronautics Recreation Association has some 40 activities in operation for employees. For information, call ARA Headquarters, ext. 1111.)

ASTRO MOTORS—Motorcycle club meets 7:30 p.m., July 18, ARA Clubhouse.

ARCHAEOLOGY — Meeting 7:30 p.m., July 25, ARA Clubhouse.

ARTS & CRAFTS—Organizational meeting of new group, 7:30 p.m., July 26, ARA Clubhouse. Details from D. A. George, ext. 4150.

ASTRO NOTES — Chorus rehearses 7:30 p.m., Mondays, ARA Clubhouse. Appearance at Mission Gorge Trailer Villa, July 26.

COINS — Coineers meet 7:30 p.m. tonight (July 18); Swing Shift Coin Club at 1:30 a.m., July 19; both in ARA Clubhouse.

EXPLORERS — Meeting 7:30 p.m. tonight (July 18), ARA Clubhouse. Field trip July 21-22.

GROUP TRAVEL—Hawaii trip Aug. 18 - Sept. 1. $300 per person includes transportation and hotel. $340 includes additional island tours.

HI-FI/MUSIC — Meeting 7:30 p.m., July 25, ARA Clubhouse.

ICE SKATING — Skating at Iceland, 6055 Lake Murray Blvd., La Mesa tomorrow (July 19), 6:30 p.m. Details from Bud Davies, ext. 4042.

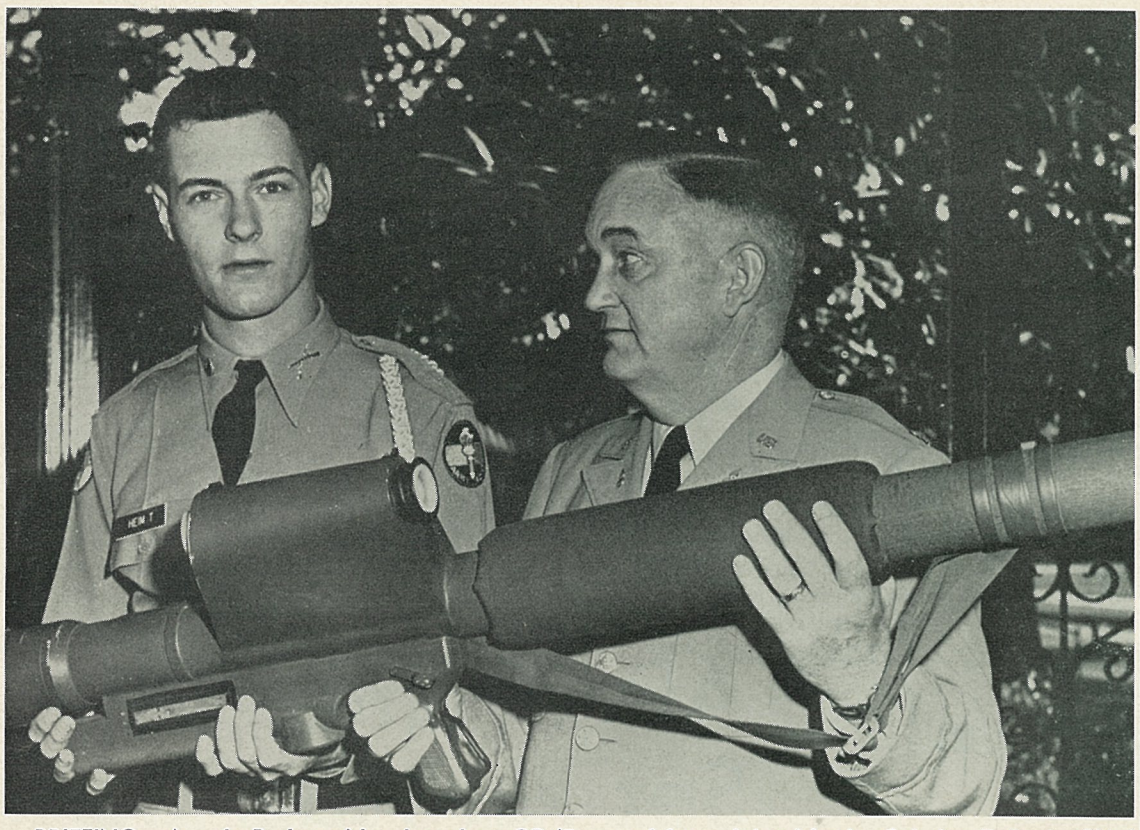
PISTOL — Club matches 9:15 a.m., July 22, San Diego Police Pistol Range.

RIDING CLUB—Horse show 9 a.m. - 5 p.m., July 22, ARA Area arena. Free.

SINGLES—Dance July 20, 9 p.m., ARA Area. Beach party July 21.

TRAILER CLUB — Outing at Oakzanita July 21-22. Wiley Clark is wagon master. Swimming, games, dancing. Visitors welcome.

WIVES AUXILIARY — Free classes in cake and gelatin decorating Thursdays 9 - 10:30 a.m., ARA Clubhouse. Reservations with Mrs. R. J. Buchan, BR-8-8706.



BRIEFING—Army's Redeye (developed at GD/Pomona) is explained by Lt. Col. Joe T. Beck, Chief of Inspection Division, Los Angeles Army Ordnance District, to Cadet 2nd Lt. Thomas A. Heim of Pasadena High School ROTC during recent visit to Army missile procurement agency.

Hustler Crews Drill For 1962 Competition

Crack B-58 Hustler crews from 43rd and 305th Bomb Wings are poised for 1962 SAC Combat Competition, which will be run over a "common course" Sept. 10-15.

Instead of competing from a central base, planes will fly from their home bases to a point where the route becomes common to all, SAC announced.

The Mach 2 Hustler—making its second appearance in "World Series" bombing competition—will compete against B-52 and B-47 bombers. KC-135 and KC-97 tankers also will compete.

On the way to the common route, competing crews will fly a celestial grid navigation leg. Bombing, air refueling, low-altitude navigation and electronic countermeasures activities will be conducted along the common route.

The bomb wing with the best composite score in these activities will receive the coveted Fairchild Trophy for a year.

Additionally, trophies will go to the best B-58, B-52 and B-47 units and to the best crews for each type aircraft. A best overall crew in the competition also will be named.

Scoring is based on: bombing, 40 points; high-level navigation, 20; low-level navigation, 10; air refueling, 10; and ECM, 20.

Each crew can score a maximum of 100 points, while a bomb wing can amass a possible 300 points. SAC Headquarters at Offutt AFB will maintain a central scoreboard.

Each competing bomb wing has been directed to name one Select (S), one Senior (E) and one Ready (R) crew in order to obtain a cross section of SAC combat crews.

Select crews are picked for "outstanding qualifications"; Senior crews for their relative degree of experience and professionalism; and Ready crews for their ability to perform a mission assignment.

Col. Frank O'Brien Jr., commander of 305th Bomb Wing at Bunker Hill AFB, Peru, Ind., has named the following three crews.

S crew: Maj. Sidney J. Kubesch, Maj. John O. Barrett and 1st Lt. Geral R. Williamson.

E crew: Capt. Wallace D. Worman, Maj. Herbert F. Fette and Capt. Louie A. Babbitt.

R crew: Maj. John S. Williams, Maj. Joseph N. Laccetti and Capt. Daniel L. McCarthy.

To represent 43rd Bomb Wing at Carswell AFB, Fort Worth, Col. Everett W. Holstrom, commander, has named:

S crew: Lt. Col. Harold E. Confer, Lt. Col. Richard H. Weir and Maj. Howard S. Bialas.

E crew: Lt. Col. David P. Hopwood, Capt. Harold M. Covington and Capt. William D. Gillett.

R crew: Maj. Leslie R. Prout Jr., Maj. Lorne R. Worthy and Capt. Donald J. Avallon.

Each bomber unit is scheduled to fly one of its crews on the first three dates. The last three dates will be kept open for make-ups due to weather.

Repair Time Cut in Half By On-Spot Panel Weld

A new welding process that allows rapid, on-the-line repair of B-58 honeycomb panels was demonstrated for the Air Force at GD/Fort Worth last week.

On hand were personnel from three sites slated to receive the new arc spot welders—43rd Bomb Wing at Carswell AFB, 305th Bomb Wing at Bunker Hill AFB, and San Antonio Air Materiel Area. Kelly AFB was also represented.

"Not only does the new process cut repair time in half," said Joe Taylor, manufacturing research engineer, "but it permits on-the-spot repairs not possible using present methods."

Reliability of the process was proven on a prototype—probably the first in the aircraft industry—built and operated at GD/Fort Worth since 1958.

"We repaired over 200 damaged B-58 panels without having to scrap a single one," Taylor explained recently.

Key to the new method is a copper "welding nozzle" about one-quarter inch in diameter. This head concentrates the weld nugget on the immediate area, preventing heat from spreading to adjacent areas.

"This is vital when temperatures sometimes approach 2,000 degrees Fahrenheit during welding," Taylor said. "With conventional welding, the extreme heat often causes contaminants such as internal oil and fuel inside the honeycomb to emit harmful gases."

Pre-welded, standardized "patch assemblies"—also made on the arc spot welder—will be used by flight-line technicians. After placing the patch, the welder operator sets a timing device which automatically holds the weld on a certain spot for a prescribed time. The operator initiates action by a two-stage foot pedal.

"Another advantage of the arc welder is that access need be made only on one side of the panel," Taylor emphasized.

Practically any configuration honeycomb can be repaired on the arc spot welder. But where a part is extremely difficult to reach, a manual "gun-type" welder can be used.

One Air Force sergeant estimated that repair time of the average honeycomb panel would be reduced by about 100 per cent using the new process. The process precludes involved heating and cooling processes now used.

"But even more important," he said, "we'll be able to repair virtually all panels on site rather than sending them to a general repair depot."

"And possibly most important of all is the reliability factor," Taylor said. "The savings in time, effort and money should be appreciable."

Accident-Free Year Flown by Texas Sq.

A Texas Air Force squadron, flying Convair-built interceptors, completed an entire year without an accident the latter part of June.

The 3558th Flying Training Squadron, Perrin AFB, near Sherman, Texas, piled up a total of 20,126 hours, 45 minutes, during the 12-month period, with over half that time in F/TF-102s.

Slightly over 10,216 hours were flown in the Convair jets, reports L. D. Harris, GD/Convair field service representative with the 3555th M&S Group at the base.

The 3558th squadron has been flying F-102s over two years and had missed a previous year's safety record during that period by only 16 days.

OPERATORS—H. R. Dvorak, left, chief of Nuclear R&D, and Maj. E. A. Kostyniak, right, AF chief-development engineering division, present nuclear reactor licenses to, from left: Jack Pugh, test engineer, J. E. Medley, nuclear engineer, and R. H. Brickley, senior test engineer.

Licenses to Operate Reactors Issued to Three FW Engineers

Three nuclear reactor operator licenses were awarded by the Air Force at GD/Fort Worth this month.

Receiving the licenses from Maj. E. A. Kostyniak, base development manager division, Air Force Plant Representative's Office, were: Jack Pugh, test engineer, J. E. Medley, nuclear engineer, and R. H. Brickley, senior test engineer.

The licenses authorize these men to operate the aerospace systems test reactor, ground test reactor and reactivity test assembly.

Tests were conducted by Air Force consultants Dr. J. E. Carothers, Lawrence Radiation Laboratory, and Dr. R. G. Cochran, head of the department of nuclear engineering and nuclear science center at Texas A & M College.

Issuance of the three licenses brings to 10 the total number awarded to GD/Fort Worth personnel.

Previous recipients were: C. W. Dickerson, nuclear engineer; E. L. Jordan, nuclear engineer; J. B. McGuffin, aircraft shield test reactor coordinator; Willie Park, ground test reactor coordinator; J. T. Pancoast III, senior nuclear engineer; D. F. Ross, nuclear engineer; and E. J. Brunner, nuclear test laboratory group engineer.

Secrest Lecturer At Texas Institute

Dr. E. L. Secrest, chief of applied research, was guest lecturer at a recent all-day Summer Institute sponsored by National Science Foundation at Texas Christian University.

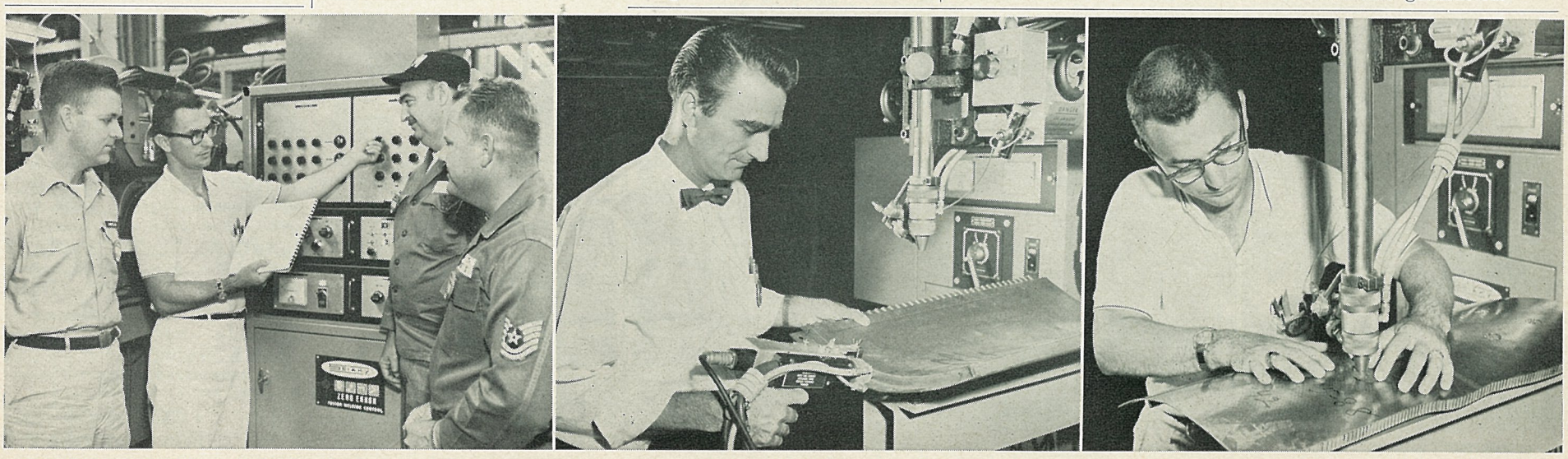
His topic was "Survey of Modern Physics." High school and secondary school science teachers from a wide area attended.

GENERAL ATOMIC AWARDED CONTRACT FOR CELLS STUDY

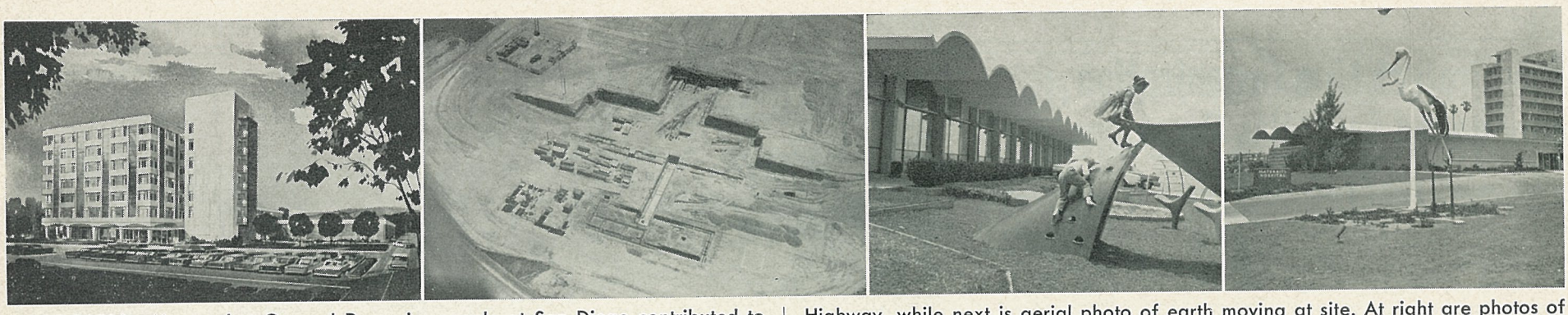
General Atomic Division of General Dynamics has been awarded an Atomic Energy Commission contract for more than $400,000 for research and development of fission-heated thermionic cells for use in high-performance nuclear reactor systems.

Under the contract with AEC, work will be directed toward determining the feasibility and practicality of thermionic generators which contain fissionable material for operation inside a nuclear reactor. Tests on in-pile thermionic generators which directly convert the fission heat of a reactor into usable electrical power will be included in the program.

General Atomic has been conducting preliminary in-reactor tests since early 1960. Subsequent tests for the AEC will investigate the long-time effects of a nuclear reactor environment on the thermionic generators.



DEMONSTRATION—At left, Joe Taylor, manufacturing research engineer, briefs Air Force personnel on arc spot welder instrument panel. AF visitors are S/Sgt. L. D. Croft, 43rd Bomb Wing, M/Sgt. K. P. Teeters, T/Sgt. J. H. White, 305th Bomb Wing. At right Taylor demonstrates arc spot weld on B-58 panel patch assembly. In center R. E. Haas, engineer, uses welding "gun." New welding process permits fast, on-the-line repair.



PROGRESS—Money that General Dynamics people at San Diego contributed to Tri-Hospital already has shown results. At left above is artist's conception of new Scripps Memorial Hospital to be built off Miramar Road, near junction with Pacific Highway, while next is aerial photo of earth moving at site. At right are photos of Sharp Memorial Hospital maternity section. Children frolic near large windows through which whole families can view newborn infants.

Grateful Thanks Climaxes Three-Years of Tri-Hospital Fund Giving

Three years of contributing to Tri-Hospital Building Fund by regular payroll deduction came to a close last month with General Dynamics employees in the San Diego area having donated a total of $1,412,-778.89, R. H. Biron, Dynamics vice president, reported this week.

"Dynamics employees, by their generous help, have earned the gratitude of the entire community," Biron, a leader in the original subscription campaign, commented.

"Well done!"

In July of 1959, to meet the urgent needs of Scripps, Mercy and Sharp hospitals, Dynamics employees by the thousands agreed to give a "day's pay a year" for three years.

At the conclusion of the period last month, George Scott, president of Tri-Hospital, voiced grateful praise for the community responsibility exhibited by Dynamics men and women.

"Tri-Hospital never would have lifted off the ground without General Dynamics . . ." he commented. "We knew we had to have really big 'pace setters' to make this campaign roll, and they turned out to be the magnificent $200,000 General Dynamics Corporate gift, and the tremendous support of employees."

Scott reported that thus far a total of $5,532,612.20 has been raised, the greatest sum ever given to capital fund raising efforts in San Diego.

Biron said that the money employees contributed will help buy an enormous amount of hospital facilities, some already built, such as the new maternity section at Sharp, and some in the process of construction, such as the new hospital under way for Scripps. Expansion at Mercy is scheduled to begin next year.

"To the employees of General Dynamics, who so generously responded to our appeal, the trustees of Tri-Hospital and the directors and administrators of Scripps, Sharp and Mercy, say thank you, with all our hearts," Scott concluded.

GENERAL DYNAMICS

ASTRONAUTICS EDITION

NEWS

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PRIZE PACKAGE—Jerry Schultz, chairman of "ARA on Parade," with, from left, Ingrid Meyer (Miss ARA) and Princesses Charlotte Pacheco, Marilyn Clark and Frances Abolins inspect door prizes for Aug. 26 affair.

'ARA on Parade' to Fete Astro Families Aug. 26

Attractions for all ages and tastes are being planned for an all-Astronautics family day event Sunday, Aug. 26, hosted by Astronautics Recreation Association.

Hours will be 11 a.m. until 10 p.m. in ARA Recreation Area east of the main plant.

Invited are all who work at GD/Astronautics and their families, including Air Force and associate contractor personnel.

Except for refreshments and a barbecue dinner, everything is free.

Through the day of fun ARA hopes to show employees what is available to them through the more than 45 hobby, sports and recreational groups meeting regularly under ARA sponsorship.

Each of ARA's activities will have either a live or static display, manned by participating members who will explain the club or hobby group and answer questions.

However, displays are only a part of festivities planned. There will be free rides for the kids from 11 a.m. until 7 p.m. Throughout the day there will be prizes, games and contests for children, featuring a "Treasure Hunt."

Adults will find a "Mystery Man" contest interesting and rewarding. Polka dancing, plus a possibility of round and square dance exhibition are being studied. Buster Carlson and his popular ARA Band will appear as a featured attraction.

A beauty pageant for young misses is scheduled. At 2 p.m. ARA, through a panel of judges, will select a "Junior Miss ARA" (3 through 6 years) and a "Little Miss ARA" (7 through 10 years). Open to dependents, this event requires advance entry. Blanks for this purpose will be available to parents tomorrow (Aug. 2) at employee outlets.

Door prizes will be available for employees, including a color

(Continued on Page 2)

ARA Will Repeat Bus Trip For Game

By popular request, GD/Astronautics Recreation Association has scheduled another group bus trip to attend a Los Angeles Dodgers baseball game.

On tap is a Sept. 7 visit to watch the Dodgers and the Pittsburgh Pirates. Buses will depart Astro no later than 5 p.m. Total cost, including game, transportation and box lunch, will be $6.50 per person. Tickets will be available in the near future.

New Project Organization Affects Atlas

Another project line organization and several new executive assignments within an institutional research and engineering organization have been announced at General Dynamics/Astronautics by President J. R. Dempsey.

The new project line organization centralizes all Atlas weapon system programs with W. L. Van Horn, vice president and program director—Atlas weapon system programs, as the executive responsible.

(This organization is not to be confused with a similar project office responsible for Atlas space launch vehicle programs, **General Dynamic NEWS**, July 18.)

Reporting to Van Horn are three assistant program directors: P. J. Lynch for weapon system support; W. F. Miller for weapon system development; and Ernie Wade for Nike-Zeus. Also reporting to Van Horn are: J. M. Rogers, manager of activation and support; E. R. McFadden, manager of systems engineering; C. J. Dunn, chief engineer-de-

(Continued on Page 2)

Family Picnic And Baseball Slated Aug. 10

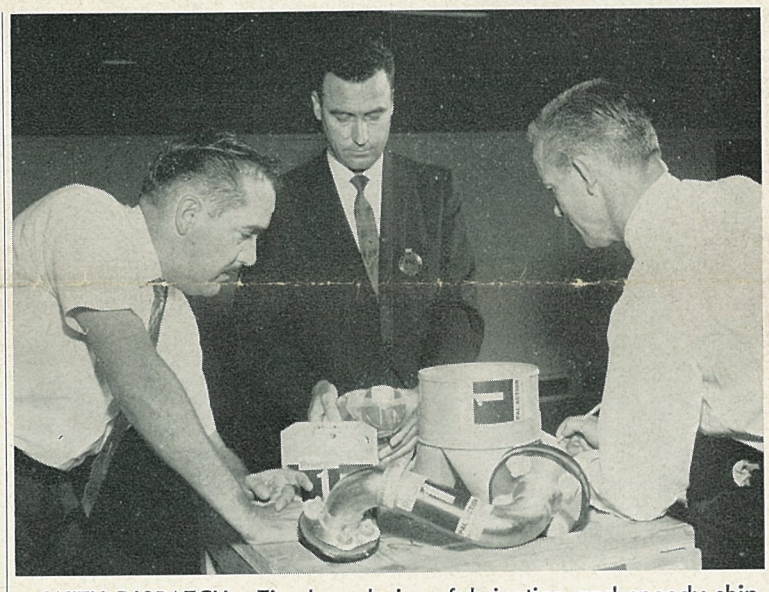
Astronautics Management Club will stage a family "Western Picnic With Pro Baseball" event Aug. 10 at Westgate Park.

An old fashioned picnic will begin at 6 p.m. in the west picnic area at Westgate Park. The fare will include barbecued beef and curried shrimp. Entertainment will include the Western Music Makers and Belante the Magic Clown.

Featured attraction will be professional baseball, pitting the San Diego Padres against the Salt Lake City Bees with game time at 8 p.m.

Tickets are now available at $2.25 for adults and $1.75 for children. Prices include food, entertainment and reserved seats at the game.

An added feature will be an opportunity to meet Padre baseball players and a chance at autographed baseballs.



WITH DISPATCH—Timely ordering, fabrication and speedy shipment of such parts as these for base facilities are extremely important at this time. L. I. "Russ" Medlock, GD/Astro operations manager at Lincoln AFB, center, confers with Al Amison, general foreman, left, and D. L. Rought, production control coordinator at Lincoln.

Atlas Employed For Interception

Still another role for General Dynamics/Astronautics' versatile Atlas was carried out successfully last month when an Atlas equipped with a special target vehicle was launched from Vandenberg AFB.

The target vehicle was later successfully intercepted by an Army Nike Zeus anti-missile system launched from the island of Kwajalein in the Southwest Pacific.

In this special Department of Defense operation, the Atlas carrying the target vehicle was sent aloft by an Air Force launch crew. The ICBM re-entry target vehicle was launched into an ICBM trajectory at ICBM speed. Neither the intercepting missile nor the target carried a nuclear warhead. The intercept test used extremely precise tracking equipment.

The test was part of a continuing development series to determine the full capability of the Nike Zeus anti-missile system.

Department of Defense Secretary McNamara, commenting on the tests, said:

"This event evidences the extensive and continuing nature of the United States program to understand the capabilities and limitations of anti-missile systems. It shows that we speak of such matters from knowledge. Concurrently and in a coordinated fashion, the United States has been carrying out a program to assure that our missiles will penetrate anti-missile systems that might be encountered. These programs give us confidence that our missiles would be able to penetrate any such system that has been developed by anyone."

★ ★ ★

GD/E 'BLACK BOXES' CHECK NIKE ZEUS

When the U. S. Nike Zeus missile killer recently intercepted an Atlas ICBM in mid-Pacific, engineers in ground support laboratory at GD/Electronics at Rochester, N. Y., were pleased with the achievement.

They had developed a series of "black boxes" which served as part of the checkout system that made sure all parts of the missile were functioning perfectly. These RF (radio frequency) tests began while the Nike Zeus, still in development, was in the early

(Continued on Page 2)

New Project Line Organization Announced For Atlas Programs

(Continued from Page 1)

sign; F. E. Grossher, manager of manufacturing operations; G. E. Putness, manager of program control; and D. Fagan, manager of test and launch operations.

Like other recently-created project line organizations, this group has prime responsibility for budgets, expenditure of funds, schedules, program performance including engineering, final assembly, checkout and launch operations on all current and follow-on Atlas weapon system contracts.

W. W. Withee, vice president-research and engineering, is responsible for the institutional research and engineering organization which will provide services to the entire division, as well as functional direction and guidance to project organizations.

Key posts in this organization are filled by G. L. Armstrong, director of systems integration; F. J. Dore, director of advanced systems; H. F. Dunholter, director of research and development; P. T. Gardner, chief engineer-test; P. D. Ferrara, chief engineer-administration; B. G. MacNabb, director, Atlantic Missile Range operations; and K. E. Newton, director, Pacific Missile Range operations.

The systems integration organization created under direction of Armstrong will provide functional direction to various projects, will facilitate optimum technical communication and coordination between them, and will ensure that lessons learned from technical changes in one project are rapidly incorporated in other projects without duplication of effort.

Armstrong will have nine senior systems integration engineering specialists, initially. Already named are C. E. Wilson for electronic systems; K. Kachigan for mechanical systems; J. W. Crooks for information systems; and J. R. Transue for performance systems.

Appointments pending include specialists for electrical systems, propulsion systems, structural systems, data systems and technical reliability.

Log Book Entries

Promotions

MAIN PLANT

Promotions to or within supervision effective July 16.

Dept. 146, Reliability Control Engineering: To reliability group engineer, L. A. Milton. To asst. reliability group engineer, P. A. Nagy, M. Noirez.

Dept. 175, PACE Services: To PACE program supervisor, L. E. Graves.

Dept. 539, Design Liaison Section: To activation engineering asst. supervisor-base, M. Graw.

Dept. 860, Vendor Research & Value Analysis: To chief, vendor research and value analysis, J. H. Johnson.

AFMTC

Dept. 571, GD/Astronautics Operations: To test conductor, J. E. Hughes.

EDWARDS RS

Dept. 975, Centaur ERS Operations: To test conductor, J. G. Mantle. To asst. test conductor, L. D. Stephens.

PLATTSBURGH AFB

Dept. 620, GD/Astronautics Operations: To subcontractor coordination asst. supervisor-base, E. L. Dierker. To plant engineering asst. supervisor-base, R. C. Hawkinson. To plant engineering supervisor-base, D. A. Wolfington.

VANDENBERG AFB

Dept. 576, GD/Astronautics Operations: To asst. flight test group engineer, L. O. Anding, J. R. Braden. To test conductor, D. A. Munizza.

WALKER AFB

Dept. 619, GD/Astronautics Operations: To office services asst. supervisor, A. H. Cripe. To material control asst. supervisor, G. L. Rafferty.

Births

MAIN PLANT

BRADLEY— Daughter, Kim Cheri, 7 lbs., 10 oz., born July 20 to Mr. and Mrs. R. E. Bradley, Dept. 733-0.

AFMTC

McDOUGAL—Daughter, Tracey Lynn, 7 lbs., 9 oz., born July 10 to Mr. and Mrs. J. R. McDougal, Dept. 571-2.

Personals

MAIN PLANT

We wish to express our gratitude to the many Astronautics friends of the late James R. McCray (Dept. 141-4) for their kindness and assistance during our recent loss. Our special thanks to members of quality control for floral offerings and other tokens of friendship.

The McCray Family.

'ARA on Parade' Slated Aug. 26

(Continued from Page 1)

TV console as grand prize. From noon until 6 p.m. hourly door prize drawings will be held. The grand drawing will be held in the early evening. Adults must be present for hourly drawings, but need not be present for the grand prize drawing.

A special brochure on ARA is being mailed to the homes of all employees in the San Diego area. It will contain a special insert about "ARA on Parade" that will have a portion to be filled out and deposited for door prize drawings. Employees must bring this to the ARA area Aug. 26 to be eligible.

Tickets for a barbecue dinner to be served from 4 until 8 p.m. go on sale at employee services outlets tomorrow (Aug. 2). They are $1 for adults and 50 cents for children and must be purchased in advance so that adequate food may be prepared.

Fair Bargain Still Available

A limited number of children's membership cards for "Century 21" at the Seattle World's Fair are still available through employee services outlets at GD/Astro.

Cards sell for $3.75 each. They may be exchanged at the Fair for two admissions, four rides, two performing arts events, two fine arts admissions and an official guide book. Total cost of these attractions far exceeds the membership card cost.

All adult memberships have been sold.

H. E. Johnson, Veteran Accountant, Retires

H. E. "Hank" Johnson, veteran budget and accounting employee, was feted by General Dynamics/Astronautics friends July 26 at Sands Hotel on occasion of his retirement.

More than 50 attended. Festivities included presentation of a photographic plaque, an engraved watch and a greens fee pass for Torrey Pines Golf Course where Johnson plans to devote time to his golf.

Johnson began work with Consolidated Aircraft in 1942 and has been a member of Astronautics' budgets department since the division was formed.

General Dynamics NEWS

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* * *

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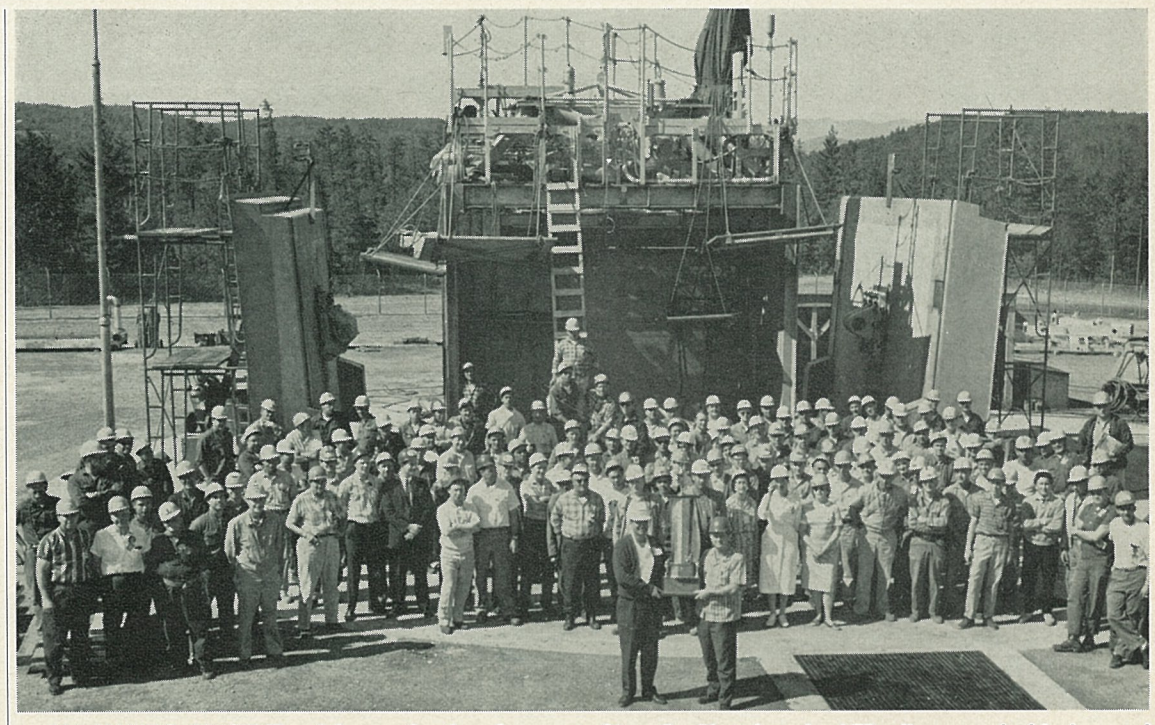


ALL HANDS PRESENT—Atlas activation force at Site 5, Plattsburgh AFB, line up behind good housekeeping trophy presented recently. Holding trophy is Astro's H. E. Sullivan (right), complex supervisor, and Bob Erickson, Bechtel Corp. superintendent. Trophy will be presented monthly.

GD/E 'BLACK BOXES' CHECK NIKE ZEUS

(Continued from Page 1)

stages of manufacture and assembly, and continue on a routine basis as long as the missile remains in a firing position. The tests might well be likened to a doctor's daily checking of a patient's pulse, temperature, respiration, and other vital functions.

The function of the RF test set is to check the missile's radio guidance and control system. To do this it generates simulated commands to the Nike Zeus guidance system, and then measures the missile's response to those commands. A series of tests that would take hours to perform manually can be completed in a few minutes by the GD/E test set.

The equipment was built under contract with Bell Telephone Laboratories.

Wives at Schilling Disband Their Club

SCHILLING AFB — Schilling Astronautics Wives Club members held two events recently prior to disbanding.

A final luncheon was staged early this month at the base Officers' Club. Featured were dancers ranging in age from 5 through 14 years.

Hostesses were Mmes. Harold Pack, Richard Oakley, Elvy Orsborn and Harry Parsons. Door prizes went to Mmes. Bert Hildebrand, Sanford Collins, Floyd Jones, Kenneth Krueger and Harold Nesmith.

Mrs. Frank Mays is current president of the group organized last year. Excessive transfers of Astro personnel have led to disbandment.

Final event staged was a swimming party held July 19 at the Officers' Club pool.

Hi-Fi Club Will See Film on Recording

"Tour of the Tower Building," a Capitol Records movie showing how recordings are made, will be featured at a meeting of ARA Hi-Fi/Music Club at 7:30 p.m., Aug. 14 in ARA Clubhouse.

The film title refers to the well-known "platter-shaped" building housing Capitol's Hollywood headquarters.

Ben Lachance, ARA commissioner, has announced that members are working to have all club equipment in their new audio room installed and ready for demonstration during the open house, "ARA on Parade," Aug. 26.

SPEEDY ARRIVAL

PLATTSBURGH AFB—Warning of imminent arrival was too brief to provide time to reach a hospital, so Michael Paul Rogers, 7 lbs., 12 oz., was born July 1 at the home of his parents, Mr. and Mrs. George Rogers. The father is in GD/Astro Dept. 620-2.

ON THE AGENDA — Don Fagan, seated, outgoing president of GD/Astro Vandenberg Management Club, goes over final notes with president-elect August Daddi. Installation of new officers came at July meeting at Santa Maria Country Club.

NAVY COMMENDS EB'S PALLANGE

A Navy commendation for "outstanding contributions to the success of the Polaris program" has been awarded Eugene P. Pallange, weapons system manager at General Dynamics/Electric Boat at Groton, Conn., builder of four of the Navy's nine operational Polaris ships.

R/Adm. I. J. Galantin, Director of the Navy's Special Projects Office, cited Pallange's work in directing installation and checkout of the Polaris weapon system in the USS George Washington, USS Patrick Henry, USS Ethan Allen, and USS Thomas A. Edison, and for the final checkout of the system on the USS Theodore Roosevelt.

Pallange has been weapons system manager at the General Dynamics shipyard for the past four years.

Divers Scheduling Picnic at La Jolla

Astro Divers, ARA skin diving club, has scheduled its annual picnic for Aug. 18 at La Jolla Shores, with festivities beginning at 6 p.m.

Members planning to attend have been asked to make reservations with Herm Reichert, ext. 4431, before Aug. 8, or at the club meeting at 7:30 p.m. that date in ARA Clubhouse.

Movies of club diving activities will be shown at the latter event.

At Astro Divers' mid-July spearfishing contest at La Jolla Cove, 15 members took part. Top honors went to ARA Commissioner Cliff Kickbush, with Reichert in second place. A total of 18 pounds of edible fish was speared.

Lensmen Will Meet At Amusement Park

Members of Astro Lens, ARA camera club, will focus on Belmont Amusement Park in Mission Beach, at their next meeting Aug. 5.

The group will gather just inside the park's main gate at 7 p.m., to begin an evening of picture taking.

ARA Commissioner Ken Rinker has invited all photographically inclined GD/Astro employees to attend this event, reminding all who do so to bring camera, film, plus flash unit and tripod if available.

Arrangements call for an attractive model to be available as added subject material.

Horse Show Draws Full Card of Entries

Two hundred seventy entries in 20 classes took part in ARA Riding Club's all-class horse show held July 22 in the club arena in ARA Area.

One of several Astro winners in the show, which drew entries from throughout the Southern California area, was Joanne Lee, who placed 5th in the "barrel race."

"Judging from excellent participation in this event, we expect an outstanding turnout for the National Horse Show to be held in our arena Sept. 1, 2 and 3," said Art Smith, ARA commissioner.

Wives Slate Outdoor Dance Party Aug. 4

Astro Wives Auxiliary will sponsor a steak fry and dance for GD/Astro husbands and wives at the main picnic shelter, ARA Area, at 6:30 p.m., Aug. 4.

The menu calls for 8-oz. top sirloins. Tickets at $2.25 per person are available at employee services outlets.

The wives group will hold a luncheon meeting Aug. 15 at Vacation Village, 1404 Vacation Road, Mission Bay, with social hour starting at 11:30 a.m., and luncheon at 12:30.

Reservations for the latter event may be made with Mrs. Louis Ferriera, BR-3-7634.

Trailer Club Plans Outing Near Alpine

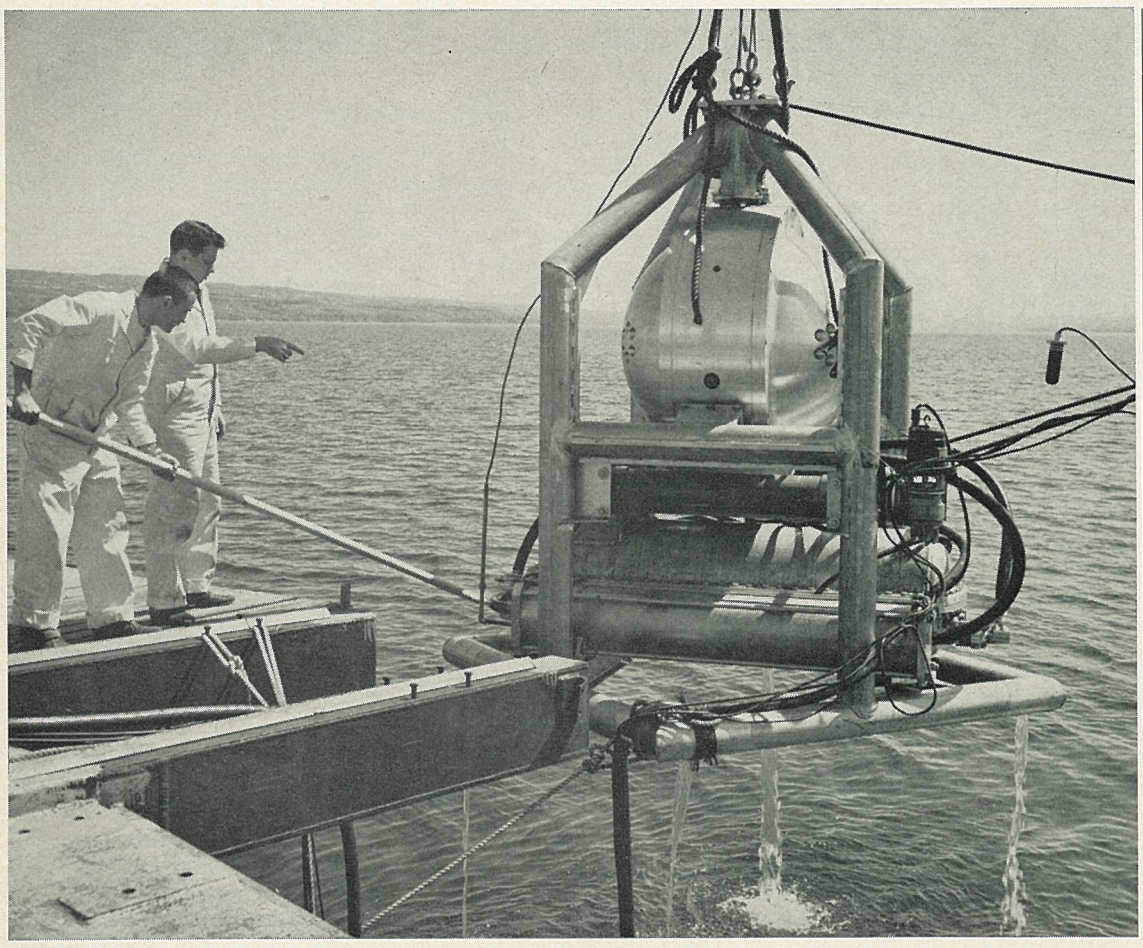
Astro Travelers, ARA trailer club, will travel to Big Oak Springs resort near Alpine Aug. 18 and 19 for a weekend outing.

Charges for the weekend will be $1.25 per trailer (up to three persons), with an added 25-cent fee for additional participants.

The resort features utility hookups, a heated swimming pool, plus clubhouse for television fans.

Gus Morris is wagon master for the trip.

Next club business meeting is set for 7:30 p.m., Aug. 17, ARA Clubhouse.



WELCOME ABOARD—"Noisemaker" which is being used for underwater sound studies by GD/Electronics at Rochester, N.Y., is raised dripping from waters of Seneca Lake with Roger Selsam and Marshall Lesser guiding it aboard research barge "Darius." Device weighs six tons.

Powerful 'Noisemaker' Developed In Anti-Submarine Warfare Study

A large and powerful underwater "noisemaker" developed by GD/Electronics at Rochester, N. Y., for the U. S. Navy Underwater Laboratory is undergoing preliminary tests at the division's research and development facility on Seneca Lake **(General Dynamics NEWS,** Nov. 8, 1961).

Looking something like a mammoth aluminum octopus, the unique noisemaker is known as a hydroacoustic transducer. The function of this particular unit is to serve as a powerful source of underwater sound for studies being conducted by the U. S. Navy as a part of its anti-submarine warfare effort.

The testing is being done from the barge "Darius," recently placed in operation at SUTEC (Seneca Lake Underwater Test and Evaluation Center) facility, based on the west shore of the lake a few miles south of Dresden, N. Y.

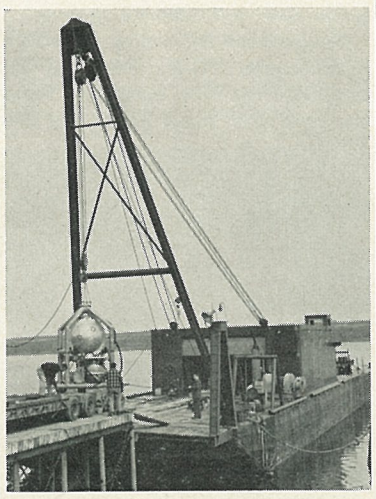
Unlike most conventional underwater sound generators which are powered electronically, the hydroacoustic transducer obtains its energy from the flow of a hydraulic fluid under pressure. By means of a unique valve amplifier, flow energy is converted into vibratory energy which is transmitted as acoustic waves into the water.

The method by which this energy conversion process is achieved was invented by Dr. John V. Bouyoucos, manager of the Hydroacoustics Laboratory at Rochester.

Marshall Lesser has been project engineer for both the transducer development and the Seneca Lake test program. Associated with him is Derek Wood, principal engineer, who was responsible for the hydroacoustic amplifier design, and Roger Selsam, senior engineer, who was responsible for structure design and is now involved in the Seneca test program.

Others instrumental in the program include William Woodhull, senior engineer responsible for analog studies, and George MacCheyne, senior engineer who conducted the vibration and stress analyses.

Gavin Jenney was responsible for the hydroacoustic amplifier tests in the laboratory, and Richard Kelly was involved in the transducer assembly and associated tests. Designers on the project were Darwin Buehlman, William Burns and Joseph Sodys.



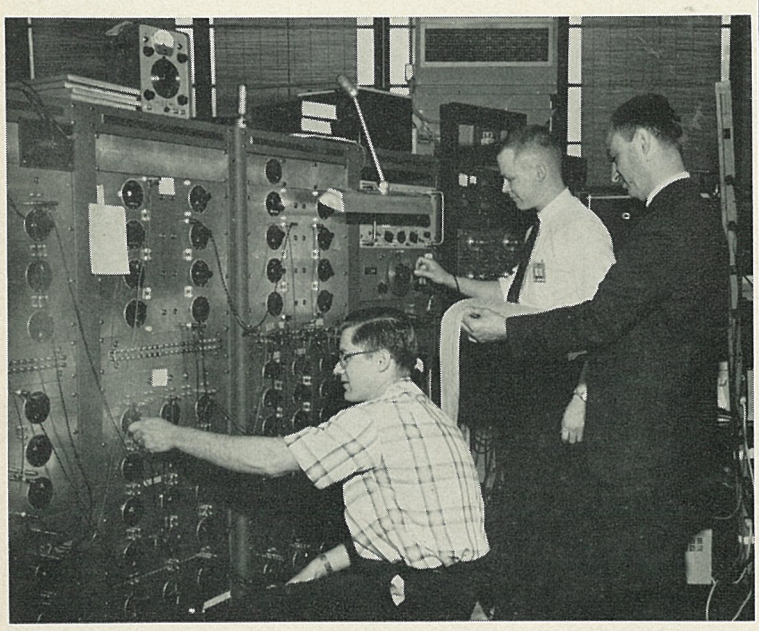
DELIVERY — New underwater transducer is loaded aboard Seneca Lake barge.

ASW's Marine Technology Laboratory under John Liu developed a pneumatic supply to provide pressure equalization for the equipment. Instrumentation was provided by Carl Hellems and associates in ASW's Under-Sea Warfare Lab headed by Arthur Zefting.

Acoustic waves are actually generated by the motion of two heavy hemispherical aluminum pistons, four feet across, and placed back-to-back, so that they form a big ball-like structure. Inside, the small valve amplifier, occupying less than one cubic foot of space, drives these pistons with a large vibratory force. The vibratory motion is controlled by a low-power electronic oscillator aboard the barge, which can be set to produce a signal of any desired frequency within the range of the transducer.

Hydraulic power for the transducer is supplied by a pump that circulates a fluid through the valve amplifier at a constant supply pressure of 3,000 pounds per square inch. The pump and its associated 100-horsepower electric motor are contained in a cylindrical oil-filled reservoir, and this and the transducer are mounted in a 10-foot-high pyramidal frame of heavy aluminum tubing. The aluminum frame was built at GD/Telecommunication at Rochester by Dept. 62 under Pat Brimstein, with S. S. (Pete) Brown as production engineer.

Hydroacoustic transducers have a number of advantages over conventional electronically powered transducers, according to Dr. Bouyoucos. They require no special materials in their construction, are exceptionally rugged, are well adapted for deep-submergence applications, are low in cost, and have a high power handling capacity for a given size.



CHECKOUT—At GD/Electronics in Rochester William Woodhull and Gavin Jenney take final measurements on transducer "breadboard" as John V. Bouyoucos, manager of Hydroacoustics Laboratory, examines graphs. This was checkout of "noisemaker" systems.

High Speed Wind Tunnel Adapted For Jet Engine Studies up to 2,000 mph

An installation which will place General Dynamics/Convair's high speed wind tunnel among the few in the country capable of research on supersonic engine components is in final stages of development.

When the new fixture goes into the tunnel next month, the division's $3½-million facility will be able to test jet engine exit nozzles destined for supersonic vehicles in conditions simulating high Mach numbers.

GD/Convair's high speed wind tunnel, located at the San Diego seaplane ramp, will be one of the few in the United States equipped to do this type of work on a commercial basis, stressed W. T. MacCarthy, chief of aerodynamics laboratories. In fact, as far as is known, the wind tunnel will be the only one on the West Coast to have such an installation.

Nozzles will be attached to an aerodynamic body positioned within the 4x4-ft. tunnel. Large pipes within the hollow steel "blade" supporting the body will carry the air flow. Thrust at high speeds will be measured by a balance within the steel body structure.

Speeds simulated will range ultimately from transonic to Mach 3, approximately 2,000 mph.

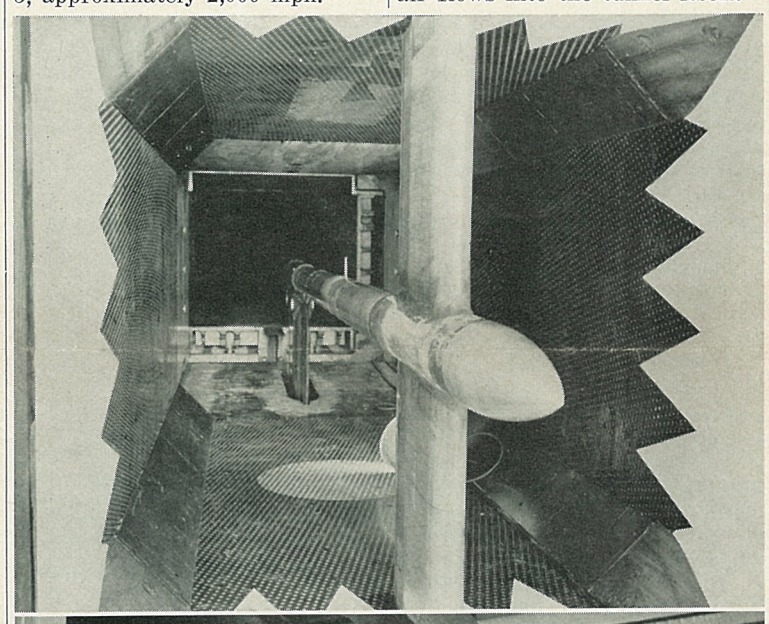
"This will allow us to compare various nozzle configurations to determine greatest amount of thrust with least drag," said D. P. Cumming, supervisor in charge of the high speed wind tunnel.

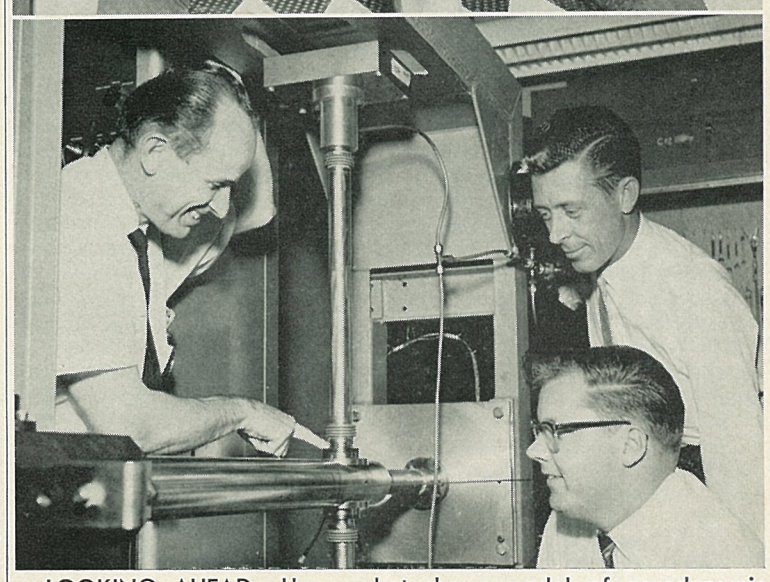
The installation will be removable so that it can be taken out for other types of wind tunnel tests.

The project, developed under an aerodynamics and thermodynamics cooperative effort, is coordinated by G. B. Nicoloff, thermodynamics design specialist. P. N. Bosch, aerodynamics lab group engineer, headed system design responsibilities.

Checkout of the air supply pipes and balances has been under way the last few weeks in the low speed wind tunnel calibration section. Tool manufacturing (Dept. 401) will fabricate parts for the final installation.

Other improvements, recently installed and checked out at the high speed wind tunnel, include a "honeycomb" steel grid, three feet thick, in the settling chamber to straighten air flow at low speeds of around Mach .5. The grid has 3x3-in. cells and is 14 feet in diameter for a snug fit within the chamber through which air flows into the tunnel itself.





LOOKING AHEAD—Upper shot shows model of aerodynamic body with supporting "blade" to go into GD/Convair high speed wind tunnel at San Diego for advanced research on supersonic jet engine parts. In lower photo, George Nicoloff, thermodynamics design specialist, Pete Bosch and Dave Cumming (kneeling), aerodynamics lab group engineers, examine components of new installation, air pipes and balance, under checkout.

New Liquid Carbonic Facility Dedicated

Liquid Carbonic Division of General Dynamics last month dedicated a new air-separation plant at Tewksbury, Mass. which already is in operation producing high purity oxygen, nitrogen and aragon gases.

The new facility becomes a part of Liquid Carbonic's coast-to-coast network serving hospitals and industries connected with metal fabrication, electronics, food processing, transportation.

Descendant of Alexander Hamilton To Christen Polaris Sub on Aug. 4

A great-great-great granddaughter of Alexander Hamilton has been selected by the Navy to sponsor the Polaris submarine bearing his name. She is Mrs. Valentine Hollingsworth Jr., of Beverly, Mass., who will christen the submarine when it is launched at General Dynamics/Electric Boat, Aug. 4, Groton, Conn.

The submarine, second ship of the Lafayette class, is 425 feet long, displaces 7,000 tons, and is designed to fire the 2,500-mile range Polaris now being developed. The first ship of the class, Lafayette, was launched May 8.

One of the architects of the American constitutional system, Alexander Hamilton was appointed the nation's first Secretary of the Treasury at the age of 32 and established the country's credit by insisting that the new federal government redeem at face value, script issued during the Revolutionary War.

Like all Polaris submarines, the Hamilton will have two complete crews, designated blue and gold, which will alternate in taking the ship to sea, thereby enabling it to be on station almost constantly.

STREAMLINED LEARNING—P. H. Selby, GD/Convair production flight training supervisor, with revised KIFIS manual, programmed instruction for pilots to cut learning time nearly in half.

Domestic Airlines Trying Out New Type GD/Convair Manual

A programmed instruction manual, prepared at General Dynamics/Convair, is being tested by domestic airlines on their people in the field to determine how it reduces learning time and increases understanding.

Copies of the second edition of the manual on KIFIS (Kollsman Integrated Flight Instrument System) compiled by P. H. Selby, production flight training supervisor, now are in the hands of TWA, Delta, Northeast, Alaska, American Airlines, FAA training departments. Swissair and SAS have indicated their interest in testing the individualized training method.

First edition, completed early this year, has been revised and expanded during testing, and, in final form, carries schematic diagrams and illustrations to supplement text.

Favorable comments on the new form of streamlined instruction, received from United Air Lines' training director, include such remarks as: "Material is presented in a logical, continuous progression which minimizes misunderstanding and can be readily digested . . . It is the opinion of the group (training instructors) that the material is given in a comprehensive and imaginative manner, which adequately enables the pilot to acquire the essential knowledge in minimum time."

The new step-by-step form of instruction has been tested on pilots of GD/Convair's production flight department, and also on Cathay Pacific pilots undergoing transition training in San Diego.

Results of these tests indicate that pilots totally unfamiliar either with the KIFIS or with programmed instruction techniques can cover the material in an average time of one hour and 45 minutes, compared to the usual three-hour classroom time. And, besides, they enjoy it!

"All the pilots who have tried the programmed method, have been most enthusiastic," said Selby. "We've found that they can absorb the same amount of material in 40 per cent less time than by the conventional lecture method. Grade average is approximately the same—92 per cent, or 23 correct answers out of a possible 25.

"However, pilots seem to grasp the subject material faster and better and say they feel as if they have a more thorough understanding when they complete the course."

The KIFIS system was chosen by Selby as a subject of wide interest, applicable for any pilot—commercial or military—who flies craft containing the system. Now, all jet transports, including Convair 880s and 990s, are equipped with the Kollsman instrument system to provide pilots with accurate information on the plane's true airspeed, maximum allowable airspeed, angle of attack, altitude, and outside air temperature.

The KIFIS manual is one of several GD/Convair Techbooks, copyrighted name of the division's programmed instruction manuals, now completed for use within the company or for outside marketing. Others deal with various phases of F-102/F-106 systems, such as the supersonic B seat; and jet transport integrated instrument panel.

An article by Selby on his experience in the programming field will be carried in a coming issue of the Journal of American Society of Training Directors.

"You'll *adore* this newest work pant . . . superbly styled . . . tiny hidden pockets that don't upset the delicate flow of smart tailoring."

GD/FW Engineering Talent Helps To Create Blood Cooling Device

A machine designed to lower body temperature during heart and brain surgery is now available in Fort Worth, thanks to funds furnished by Employee's Con-Trib-Club and over 4,000 manhours volunteered by a half dozen engineers.

The machine is used to drop blood temperature to 48 degrees Fahrenheit by circulating the patient's blood through the machine's myriad of stainless steel tubes and back into the body.

"The lower the temperature of the body, the less demand for oxygen by tissue and cells," said C. W. Cooper, engineering employees administrative group, who coordinated the two-and-a-half year effort.

"Since a cold heart needs less oxygen, it can be stopped or slowed down for longer periods than a warmer heart, giving the surgeon more time in which to operate. The same principle applies in the brain."

The need for such a machine was cited many months ago by a local surgeon. GD/Fort Worth Employees' Con-Trib-Club agreed to lend a hand, and a group of engineers "with medical interests" plunged into the difficult technical problems.

Hal Wesson, former GD/Fort Worth engineer who is a specialist in heat transfer and fluid flow, designed and constructed the main unit, including the electrical control system. Others built the heat exchanger which perches atop the machine.

Helping with the design and construction were J. W. Gash, engineering change control; Fiske Hanley, manufacturing development supervisor; and Don Cole, manufacturing research engineer.

Hanley and Cole solved some difficult manufacturing and development problems, while Gash spent many hours in his home workshop on the actual machining and assembly.

All of these men have for some time been quite interested in engineering ideas as applied to medicine.

Heart of the machine is a barrel-like unit which sits atop a larger component containing the regular air conditioning paraphernalia. It is about 30 inches long and 3½ inches in diameter.

A main tube contains the 70 small tubes, through which blood flows for cooling. Cold water is circulated inside the main tube and outside the smaller tubes.

The machine is designed to lower body temperature three degrees Fahrenheit per minute. When the operation is completed, the machine can be turned from cooling to heating.

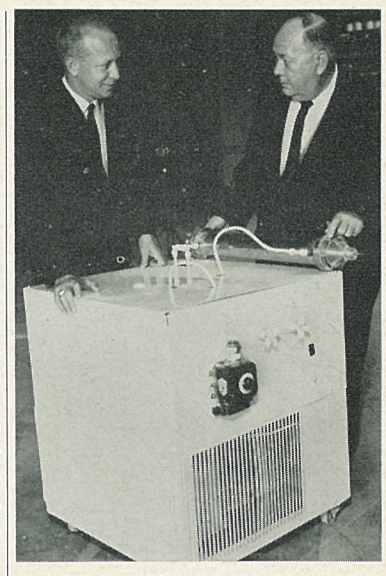
Tarrant County Heart Association also assisted in building the machine, which can be used where needed in the county.

The machine represents a vast improvement over previous methods used for lowering body temperature, a local surgeon said.

"Other machines for cooling the entire body have been developed since we started on this project," Cooper said, "but at the outset there was none except for the extremely cumbersome method of packing the entire body in ice for a period of several hours."

Such machines are quite expensive commercially, costing several thousand dollars. But the total cost for the one built by GD employees cost well under $1,000.

The secret to lower cost was voluntary help from many individuals, and donation of parts and material from several sources.



LIFE-SAVER — Machine that lowers body temperature during heart and brain surgery is discussed at Fort Worth by C. W. Cooper, left, engineering employees administrative group, and Milt Stewart, employee services representative.

VOLUNTEERS—Much of credit for designing and building components of heart machine goes to this GD/FW trio, from left: J. W. Gash, engineering change control; Don Cole, manufacturing research engineer; and Fiske Hanley, manufacturing development supervisor.

$1,000 Donated To Heart Fund

A new electrocardiogram machine for testing heart conditions will be bought with part of $1,000 donated July 24 to Tarrant County Heart Association by the General Dynamics/Fort Worth Employees' Con-Trib-Club.

Of the total amount, $633 was donated in lieu of flowers at the request of the family of the late V. C. Gillon, GD/Fort Worth director of program planning, who died June 20. The remainder was allocated by Con-Trib-Club.

The check was presented by Milton A. Stewart, member of the Con-Trib board of directors. It was received by Dr. John Marrietta, Heart Association president, at the organization's quarters in John Peter Smith Hospital.

In addition to the electrocardiogram machine, which costs approximately $900, the donation also will enable the Heart Association to further work on other equipment used in treatment of heart conditions.

The association, one of the United Fund agencies, makes its services available to anyone in the county.

MAYFIELD TEMPORARY MANAGER FOR NIGHTS

L. M. Mayfield, assistant superintendent factory second shift, has been named temporary night manager, succeeding Jack Haynes, who will be on vacation until Aug. 6 from GD/Fort Worth.

Blast 5,500 Miles Away Registers at Rochester

"It was a whopper!"

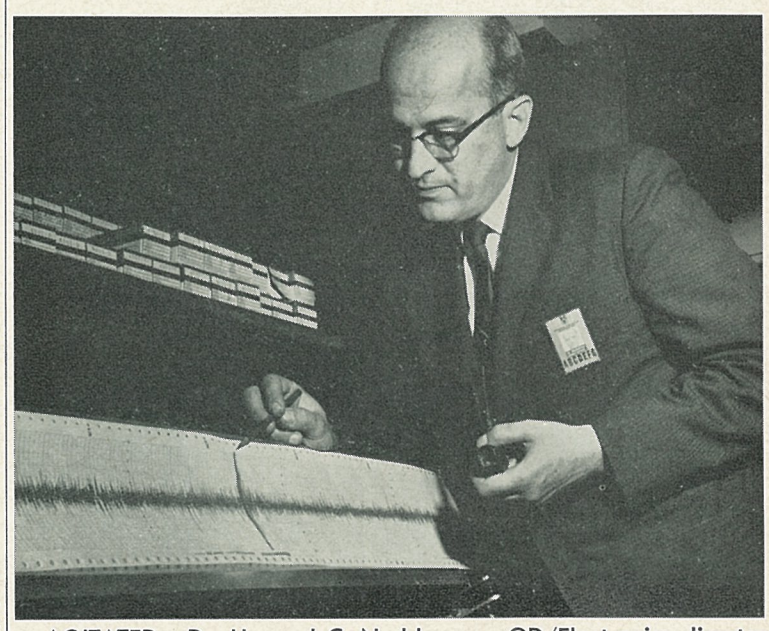
So General Dynamics scientists in Rochester, N. Y., described the magnetic reaction measured from the hydrogen blast high over the Pacific July 9.

A simple recording device set up by GD/Electronics research scientists at Hathaway Hill, near Rochester, reacted almost immediately to the effects of the blast over Johnston Island some 5,500 miles away. For about two minutes the needle on the recording chart jumped frantically, bouncing off the edges, leaving a thick solid line.

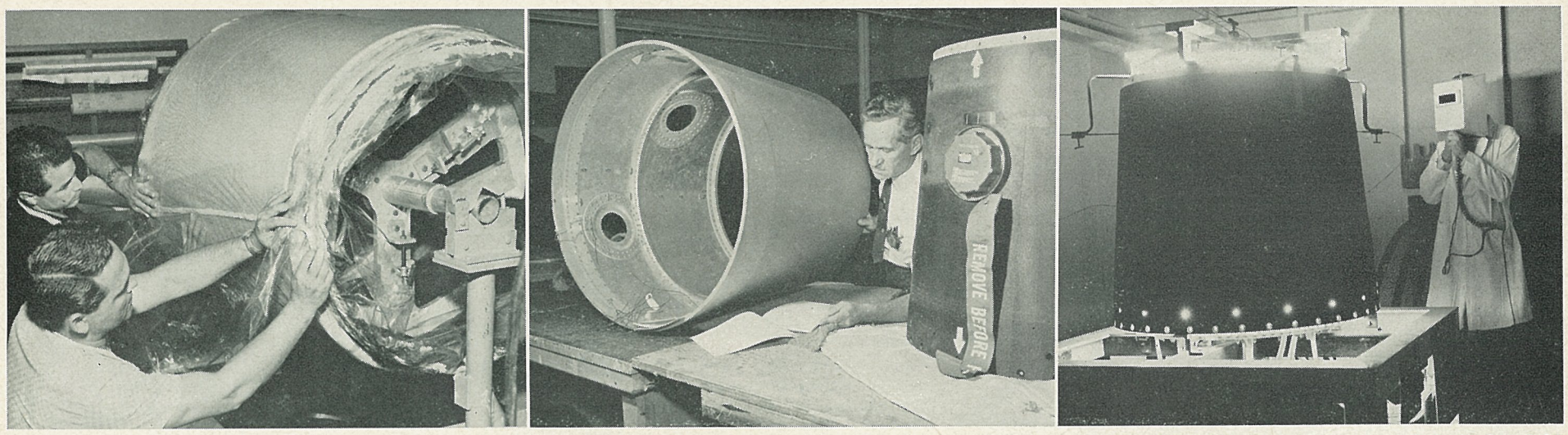
"Picking up the effects of such an explosion at this distance, on simple recording equipment, graphically shows that a large blast in the atmosphere can easily be recorded throughout the world," Dr. Howard C. Nedderman, director of research for GD/E at Rochester, said.

A team of Dynamics research scientists, headed by Dr. Raymond A. Santirocco, astrophysicist, had stood by at Hathaway Hill through the many nights when the explosion was originally scheduled. However, by the time the explosion actually took place their more sophisticated recording equipment was on its way to Bermuda for use in a study of flutters in the earth's magnetic field, under a contract with the Office of Naval Research. With Dr. Santirocco in Bermuda were Eugene Parker and James Dennison of GD/E.

The Bermuda study, similar to one conducted by the team in the Azores a year and a half ago, is seeking data which may shed light on limitations to space communications which result from geomagnetic fluctuations.



AGITATED—Dr. Howard C. Nedderman, GD/Electronics director of research at Rochester, N.Y., points to recording device reaction to hydrogen blast over Pacific, 5,500 miles away.



VACUUM CHECKOUT—At left, Ray Lucero and Harold Cabral, GD/Convair plastic fabricators, secure Minuteman missile assembly prior to pressure test. Inside is rubber "boot" that has been time-saver. In center, E. E. Carpenter, Dept. 128 assistant foreman, checks cone-like fiber glass assembly that is light brown (left) after first curing stage, but turns black (right) after post-cure period. At far right Dave Fletcher, structures lab test engineer, watches reaction of completed cone to 700-deg. temperatures on heat lamp. Heat checkout will be made on each unit at GD/Convair structures test lab.

Miniature Transponder To Survive Moon Impact

Experience gained in over 15 years of development and production of transponders will be utilized by General Dynamics/Astronautics in fulfilling a contract awarded by the Air Force Cambridge Research Laboratories (AFCRL).

Astro is to design, develop and construct a prototype lunar transponder to perform research on the moon's gravity, physical features and other general characteristics.

The transponder will weigh less than 10 pounds and will be capable of withstanding an impact on the moon about 3,000 times the force of its own weight on earth. It is a solid state electronic device which receives radio signals and retransmits them continuously at a different frequency.

Contract terms also call for a study of the requirements for four earth-based stations to track the transponder which will operate during flight to the moon as well as after impact.

In determining the distance from earth to the moon, AFCRL scientists will transmit to the transponder and record the number of cycles in the return signal beamed back to tracking stations. Radio signals make the 477,800-mile round trip to the moon at a mean distance from the earth in about 2½ seconds.

Astronautics' work on transponders dates back to 1946 when the Azusa missile tracking system was under development.

Astro-built transponders are installed on almost all missiles flown from Cape Canaveral. To date, they have been used on more than 400 missiles.

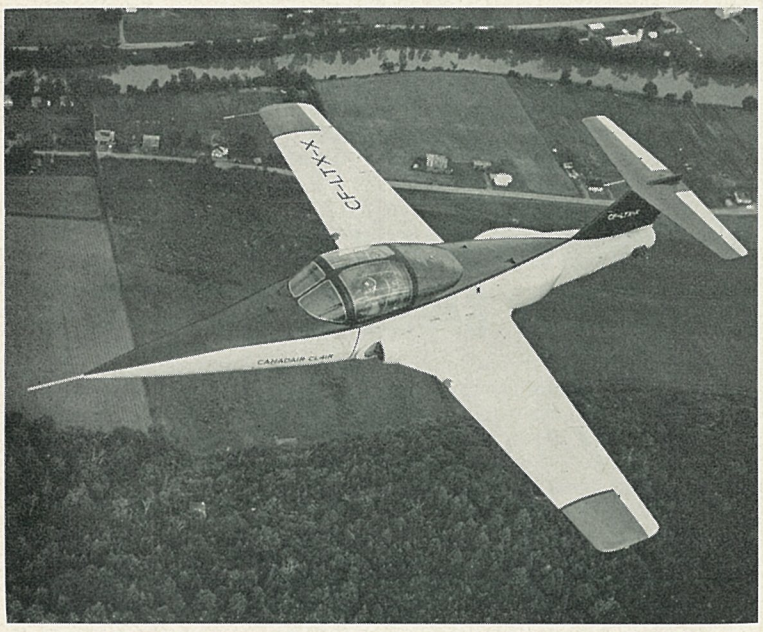
Early transponders weighed about 100 pounds. Current operational models weigh about 20 pounds as compared to less than 10 pounds programmed for the lunar transponder.

ROSENBAUM AMONG SEMINAR SPEAKERS

Mortimer Rosenbaum, executive vice president of General Dynamics/Astronautics, will be among speakers at a three-day seminar on technical communications Aug. 16-18 at California Western University, San Diego.

The Communications Technology Seminar, which will examine technical communications problems in this country and abroad, is sponsored by Cal-Western in cooperation with the Society of Technical Writers and Publishers.

Areas for discussion will include proposed four-year curriculae for degrees in communications; industry needs for better technical communications in management levels; information retrieval; and integration of present college courses and training into programs for different degrees in communications.



FIRST FLIGHT—New type of jet trainer, built by Canadair Limited of Montreal, is CL-41R. It carries full range of electronic systems used in F-104 aircraft.

Canadair Introduces New Type Jet Trainer For Economical Pilot Indoctrination

A new type jet trainer airplane, the Canadair CL-41R, made its first flight at Montreal last month.

Built by Canadair Limited, Canadian subsidiary of General Dynamics, the airplane carries the full range of electronics systems which equip the F-104, soon to enter service with NATO in Europe.

The trainer provides systems training for pilots at a fraction of the cost of training in operational aircraft. The CL-41R is a development of the CL-41A pilot trainer, of which 190 are being built for the Royal Canadian Air Force. Both are powered by General Electric CJ610-1B turbojet engines.

Canadair reported that the new trainer has ample capacity and is readily adaptable for electronics systems of other advanced military and naval aircraft.

The CL-41A has now flown more than 350 hours and is in full production at Montreal.

American Airlines Adding 990 Flights

Six 900 Astrojet flights will be added today (Aug. 1) by American Airlines with recent deliveries of the jet airliner by General Dynamics/Convair.

New Convair 990 flights leave New York at 2 p.m. for Chicago, and leave Chicago at 3 p.m. for New York; from Chicago at 8 a.m. for Cincinnati and New York, and from New York at 7:30 p.m. for Cincinnati and Chicago; from Chicago at 7:10 a.m. for St. Louis, and from St. Louis at 9 a.m. for New York.

QC CONFERENCE—General Dynamics quality control managers and aides met at GD/Telecommunication in Rochester recently, hosted by Clayton W. Holden, GD/Telecom's manager of quality control and inspection (seated at head of table).

SAC Hustlers Roaming Midwest In Practice Attacks Upon Cities

SAC Hustlers started "bombing" seven more cities—all in the Midwestern United States — on July 15.

The cities are Kansas City, Mo.; Omaha and Hastings, Neb.; Scenic Badlands, S. D.; Milwaukee, Wis., and Cleveland and Cincinnati, Ohio.

B-58s from 43rd Bomb Wing at Carswell AFB, Fort Worth, and 305th Bomb Wing at Bunker Hill AFB, Peru, Ind., will make simulated bomb drops on these cities at supersonic speeds over five 40-mile wide corridors.

Earlier, 15 cities on seven routes in eight states were listed as B-58 targets.

The simulated bomb drops will be scored by Air Force radar bomb scoring units and Army Nike sites at target cities.

The corridor for Cleveland and Cincinnati has entry points at Farmington, Mo., and Rockdale, N. Y. The Cincinnati-Milwaukee corridor has Asheville, N. C., and Minot, N. D., as entry points.

St. Louis and Boysen Reservoir, Wyo., are entry points for the Omaha-Scenic Badlands route. The other two corridors have Boysen Reservoir and Little Rock, Ark., as entry points.

During the flights, the B-58s will cause sonic booms along the designated corridors. Because of the high altitude, the sonic booms will be comparatively weak when they reach the earth's surface, SAC said.

Two 3070 Printers Marketed by GD/E

General Dynamics/Electronics at San Diego has sold two S-C 3070 high-speed electrostatic printers.

One of the printers was purchased by Texas Instruments, located in Dallas, Texas. The second printer was sold to the Redstone Arsenal at Huntsville, Ala., which will use it with a specialized computer on a classified project.

Business Budgeters Elect Three at SD

Two GD/Astronautics men and a GD/Convair man have been elected to top posts in the local and national organization of the National Society for Business Budgeting.

Arthur O. Brymer, GD/Astro budget supervisor, will head the San Diego Chapter as president for the 1962-63 term. Fred N. Minter, GD/Convair manager of indirect budgets, is new vice president.

John B. Morgan, GD/Astro manager of off-site accounting, recently was chosen national secretary-treasurer.

"Did you tell her about releasing the ball?"

Rubber 'Bag' Developed To Guard Missile Part

A rubber "boot" is cutting hours from General Dynamics/Convair's work during fabrication of assemblies for the Minuteman intercontinental ballistic missile.

Under an order from North American Aviation Co., subcontractor, GD/Convair is currently building 39 cone-shaped units, insulation for guidance housings. Boeing Co. is prime contractor for the Minuteman program.

First methods of lay-up of the fiber glass cone, which must go through a tedious process of buildup in two stages, showed that a great deal of time was necessary for "bagging," or preparing the part for vacuum pressurizing. It was taking three hours for plastic fabricators in Dept. 128, under direction of Lee Stamper, foreman, and E. E. Carpenter, assistant foreman, to prepare a unit for the first pre-cure operation.

R. L. Williaford of factory methods suggested that a heavy rubber bag be substituted for the conventional plastic material used inside during vacuum pressure check. Time was cut by more than half. Now, two men can bag the unit in less than an hour. Altogether, 148 manhours will be saved on the remaining 37 units.

In addition to a more efficient bagging operation, danger of vacuum leaks which could cause voids in the fiber glass, was eliminated. Using the heavy material, the cone can be placed on a tool fixture for processing throughout the complete sequence—bagging, pressurizing, curing in the oven.

The rubber, which withstands wear and tear on the tool, can be used over and over, for as many as 50 times. The plastic material could be used just once.

The cone is built up of many layers of fiber glass over an aluminum shell—when finished it has from 14 to 28 thicknesses molding the cone-like shape—pressed to steel-like strength.

It goes into the oven for four hours for first pre-cure from temperatures ranging from 180 to 300 degrees F., then back for another lay-up of more fiber glass layers, and pressurizing to force the fiber glass onto the shell. It is put back into the oven four more hours and then goes through a 20-hour post-cure cooking from 180-500 degrees.

Each unit must withstand a structural checkout at the GD/Convair structures lab under 700-degree F. temperatures on a million-watt heat lamp bank before final acceptance.

Dynamics Sends 19 To Nuclear Course

Nineteen General Dynamics men last month attended a Guided Missile, Rocket and Nuclear Weapons Safety Conference at Naval Air Station, San Diego, and successfully completed the three-day course.

Attending from GD/Pomona were T. R. Smith, safety supervisor; J. O. Bailey, Dept. 22; M. R. Jackson, Dept. 7; L. V. Kilpatrick, Dept. 6; J. H. Pikus, Dept. 21; A. L. Pruitt, Dept. 7; E. W. Shaffer, Dept. 25; D. I. Turner, Dept. 27.

W. O. Borden, safety engineer, and D. G. Abshier, Dept. 581-4, attended from GD/Astronautics, while GD/Convair sent M. C. Val Dez, senior safety engineer; D. D. Dimmitt Jr., fire chief; W. P. Easley, R. K. Jepperson, A. W. Kellogg, J. E. Lampman, all Dept. 6; I. L. Beauchamp, Dept. 3-5; S. W. Rowland Jr., Dept. 3-6; and A. C. Oehler, Dept. 31.

GIANTS—Huge dahlias dwarfing Astro's Nancy Vouaux, Dept. 602, are sample of those to be shown at ARA-CRA Garden Clubs' joint Summer Show, Floral Association Bldg., Balboa Park, Aug. 12. Dahlias, vegetables and arrangements will be exhibited 1 to 6 p.m.

Dahlia Growers Groom Entries For ARA-CRA Summer Show

Forty-one different classes are open to GD/Convair and GD/Astro dahlia growers who plan to exhibit in the coming Summer Show sponsored jointly by CRA and ARA Garden Clubs.

One of the two large shows held annually by General Dynamics flower clubs, ARA Commissioner Everett Henderson and CRA Commissioner E. L. Zimmerman expect the largest turnout ever at the Aug. 12 display.

Entries will be accepted at the Floral Association Bldg. in Balboa Park from 7 to 11 a.m. on show day. Doors will be open to the public, following judging, from 1 to 6 p.m.

Four main divisions for dahlia exhibits are: one medium or large bloom, over four inches in diameter; one cactus or semi-cactus, over four inches in diameter; three pompons, less than two inches in diameter; three miniatures or balls, two to four inches in diameter.

Other show divisions are open for citrus and deciduous fruits, vegetables, arrangements and corsages, and children's displays.

Best of show awards will go for best dahlia, largest dahlia, smallest dahlia, best citrus, best deciduous, best vegetable, best arrangement, best corsage, and best children's entry.

All specimens entered must be grown by the exhibitor.

Sailplane Pilots Earn Credits Toward International Awards

Three General Dynamics soaring experts piled up credits toward international awards during a weekend flying session from Inyokern on July 14-15.

Gene Whigham, CRA commissioner, and Duke Stallings of GD/Astro completed all requirements for the Federation Aeronautique Internationale gold C badge with one diamond with their goal and distance flights.

Walt Mooney of General Atomic gained 10,500 feet altitude above release as a leg toward the same award.

Whigham took off in his original design sailplane a little after noon on Saturday on a goal flight from Inyokern to Bishop and return to Grant's airport, a distance of 205 miles. A cloud "street" under a cumulus cloud formation gave him a straight shoot from the south end of the White and Sierra Mountains to Bishop. On the return flight he maintained an altitude of between 14.000 and 15,000 feet while cruising 80 miles an hour on a straight course for 65 miles.

Stallings followed Whigham a half an hour later in a Schweizer 1-23 over the same course.

The next day Whigham attempted a flight from Inyokern to Elsinore but was forced down near Apple Valley for a flight of 95 miles.

Hours For Salvage Sales Established

Salvage yards at GD/Convair and GD/Astro are open for employee sales on the following alternating Saturday schedule:

GD/Convair—Aug. 4, 18.

GD/Astro—Aug. 11, 25.

Sales hours are 8 a.m. until noon at both Plant 1 and Kearny Mesa sites.

Deadline Next Week For Mexico Tour

General Dynamics travelers may still sign for the coming two-week tour of Mexico—if they hurry.

Jim Hardison of GD/Convair, who is organizing the trip at reduced prices for GD/Convair, GD/Astro, GD/Electronics people and their families, said that a few openings remain. Next week will be deadline for registering.

Tour dates are Aug. 17 to Sept. 2, with departure from Mexicali. Itinerary includes Guadalajara, Mexico City and environs, Taxco, Cuernavaca, Acapulco, Puebla.

Price will be $350 for the package deal, including transportation, food and lodging, if as many as 30 travel in a group.

Hardison may be reached at his home phone, BR-6-5805, evenings, for details.

Silver Service Prizes Await Trap Winners

Prizes of silver service await winners in CRA-ARA Gun Club's registered trapshoot Sunday (Aug. 5), 10 a.m., at Gillespie Field Range.

Scheduled events are 16-yard, handicap and doubles, each event consisting of 100 targets per shooter.

Silver service will be awarded winners in doubles and five separate classes in 16-yard shoots. Handicap champs will collect prizes for winner, runner-up, high junior and high lady.

CRA Commissioner Jack Swank emphasized that all GD/Astro, GD/Convair and GD/Electronics newcomers are eligible and invited to compete.

"Beginners without equipment are welcome as we furnish guns and instruction at all Gun Club meets," Swank said.

Gun Club shoots are held every Wednesday and Friday evening at 6:30, and the first Sunday of each month at Gillespie Field.

Dan Witkoff, 15, son of Sam Witkoff, GD/Convair quality control, picked up a shotgun for the first time recently and blasted 23 out of 24 birds. Witkoff said the boy's only practice was shooting at butterflies with a B-B gun!

AES Will Hear Scripps Study

General Dynamics members of the Aerospace Electrical Society will hear a talk on cardiac automatism and its relation to space medicine at the Aug. 9 meeting, 7:30 p.m., in Balboa Park's Puppet Theater.

Dr. David Jensen of Scripps Institution of Oceanography will discuss his heart research findings based on studies of the hagfish, a primitive bottom-dwelling fish with three hearts. Instruments and techniques used to acquire information will be explained in relation to their possible application in space medicine. Slides and movies will supplement the lecture.

An August family picnic is in planning stage with members to be notified of the date, said E. F. Kotnik of GD/Convair Dept. 6, president.

For information call Kotnik, ext. 2724, W. T. Dorrance, ext. 2168, both GD/Convair Plant 1; C. F. McCabe, ext. 2244, or Robert Kulick, ext. 1818, both GD/Astro main plant.

YOUNGSTERS WIN NOVICE TOURNEY

The younger set dominated play in the recent CRA-sponsored novice tennis tournament open to players from both GD/Convair and GD/Astro, held at Morley Field courts July 7, 8, 14 and 15.

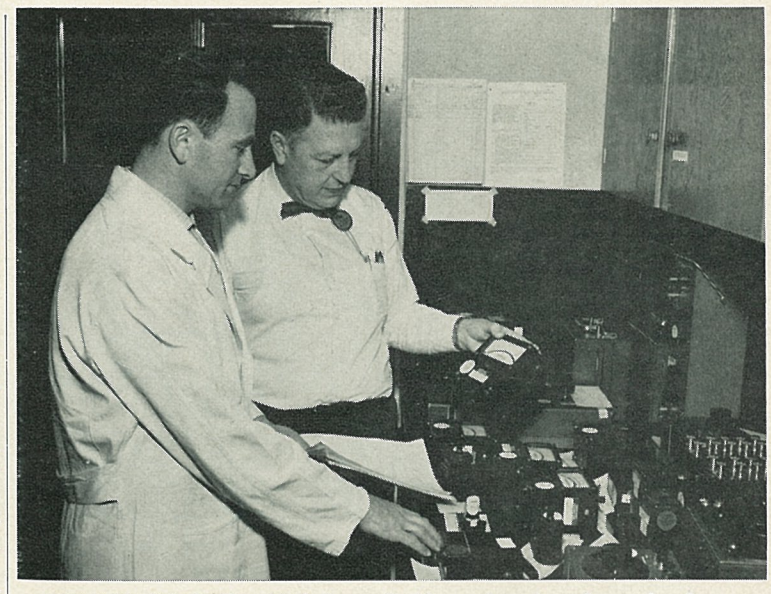
Administered jointly by Pete Beyrer, CRA commissioner, and ARA Commissioner Ben Cendali, the event attracted more than 50 hard-court fans, with 40 singles entries and 14 doubles teams.

In singles finals Marshall Cheung, son of Astro's L. T. Cheung, defeated Dave Bennett, son of Astro employee E. F. Bennett, 6-4, 6-3.

Young Cheung then teamed with partner E. Freeman to down the father-son duo of Convair's Dick Trout and son Dennis, 4-6, 7-5, 6-3 for doubles honors.

CRA provided balls and trophies.

"I'm getting sick and tired of being introduced as your stablemate."



VIENNA IMPORT—Al Spitzer (left), native Austrian, checks over electrical items at GD/Convair with W. A. Dershem, in charge of primary standards lab.

Wartime Training

Salary-Less Apprenticeship Recalled by Former Viennese

Learning a trade in the midst of air raids, an experience few apprentices in this country have had to combat, still is vivid in the memory of a young man in the General Dynamics/Convair primary standards laboratories.

Al Spitzer, who now calls San Diego home, began his training at the age of 14 in his native Vienna, Austria, during World War II. In fact, his future career was settled at the age of 10, a usual custom, he said.

"My mother decided that I should be apprenticed in 'Feinmechanik,' or general mechanical training. She was seriously considering watchmaking at the time, but finally chose the mechanical field as the better trade."

His mother's choice started Spitzer on the path which landed him at GD/Convair over eight years ago as a meter calibration and repair technician in the standards lab.

Spitzer began his apprenticeship in 1942, during the German occupation of Austria, under a certified master of the trade in a small shop which manufactured and calibrated meters. During the three-and-a-half years of his training he worked from 6:30 in the morning to 5:30 p.m. at no regular salary.

"Employers gave apprentices a small allowance for spending, equivalent to $2 or so a day. This was just enough for transportation and a movie once in a while."

He remembers that one of the greatest annoyances during the war, besides the lack of food, was having to carry the precious standards used for calibration to the air raid shelter every time an alert was sounded.

Business was maintained on a fairly even keel with few disruptions until near the end of the European war in 1945. For several months after the Germans retreated and before a stable government could be set up, there was no electricity or power of any kind—street cars stopped running and everything came to a halt.

"It was useless to even try to get to work. Our main thought was to keep off the streets and out of sight," Spitzer remembered.

After he received his journeyman's rating in the summer of 1945, he came to the United States with the help of his father, a naturalized citizen then living in Chicago. Spitzer worked over four years in the X-ray division of General Electric Co., until he was drafted into the Army Signal Corps during the Korean War. He spent his tour of duty as instructor in an electrical instrument repair school in Georgia.

Upon his discharge, an advertisement from the GD/Convair standards lab in the Chicago Tribune fulfilled his dream of coming to California.

He made his first trip home last year with his wife, Barbara, a native of San Diego. "But, even with conditions back to normal and better than I ever remember in my childhood, I wouldn't want to go back," he said. "I'm an American now and feel that this is my home."

Air Explorers Ready to Shoot Rogue River Rapids by Raft

Thirty-two excited boys, most from General Dynamics families, will pile into trucks this Friday for the first leg of an adventure that will take them shooting down rugged river rapids to the ocean before they see home again, two weeks from now.

Weeks of rigorous preparation will pay off as the teen-agers, all 16 to 18, match muscles with the 67 rapids of the Rogue River on the 89-mile stretch from Grant's Pass, Ore., to the Pacific Ocean. The boys, all members of the GD/Convair Management Club-sponsored Air Explorer Squadron 340, have spent almost two months getting their equipment together and learning to handle their rubber boats.

Gene Boyd, squadron adviser and Management Club board representative, who has shot the Rogue rapids twice before with other Explorer groups, will direct operations. Other adult advisers making the trip are Jim Megargee, GD/Convair Dept. 48, Ken Kerr of GD/Astro, and Nate Wells of the city park commission.

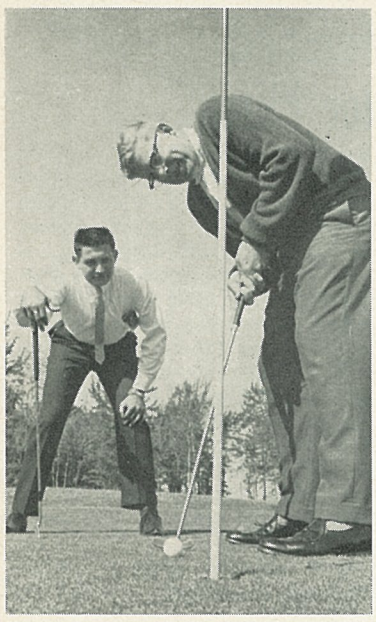
When the intrepid river runners grab their paddles next Monday morning as they push into the river near Grant's Pass they will leave civilization behind for 12 days. During that time they will be entirely dependent upon themselves in a remote wilderness.

"I have never ceased to be amazed at the ingenuity of these boys when faced with a challenge," said Boyd. "In fact, they take excellent care of their adult advisers!

"When they return as hardened river rats they will have a store of memories they'll never lose. And such names as 'white waters,' Ramey Falls, Horseshoe Bend, Two-Mile Rapid, Mule Creek will be part of a new vocabulary, each name conjuring visions of experiences, perhaps even hardships, few people know.

"I come back from every such trip wiser and more thankful that there are still people interested enough in the youth of the community to sponsor such programs."

Recreation associations at both GD/Convair and GD/Astro will join the GD/Convair Management Club in taking care of the cost of the trip—estimated at near $2,000. Each boy pays $35 for his own food supply.



JUST STROKE—Jack Shea of GD/Astro's Plattsburgh AFB operations shows C. A. Klyber how to stroke for pin. Shea recently qualified for New York State Amateur Championship.

Plattsburgh's Shea Local Links Star

PLATTSBURGH AFB — Jack Shea (Dept. 620-4) of Astronautics' operations here has attracted attention among upstate New York amateur golfers.

Shea recently qualified for the New York State Championship with a 75 at Lake Placid.

Top contender in local and ARA-sponsored events, Shea has also helped fellow Astro employees with their games. C. A. Klyber, quality control supervisor, coached by Shea, recently won an ARA-sponsored event.

Patio Party Planned By ARA Singles Club

A patio dance for all single adult employees of GD/Astro will be held by ARA Singles Club at the main picnic shelter, ARA Area, from 9 p.m. to midnight, Aug. 3.

Admission is 50 cents upon presentation of GD/Astro identification card. Live music will be featured.

Singles Club will hold similar events on alternate Fridays throughout the summer.

Dance-A-Rama Series Will Resume Aug. 11

GD/Astro Recreation Association will reopen its Dance-A-Rama series of bimonthly dances for employees with an event Aug. 11 in the International Room, El Cortez Hotel.

Buster Carlson and his Astro band will play for dancing from 9 p.m. to 1 a.m.

Tickets at 75 cents per person are available at employee services outlets, from AR-Aiders, and members of the Astro band.

Subsequent events are slated for Del Webb's newly opened Ocean House Oct. 13, and at El Cortez for a gala Christmas party Dec. 15.

Knutson Leads ARA Shooters In Pistol Match

Next matches of ARA Pistol Club will start at 9:15 a.m., Aug. 12, at San Diego Police Pistol Range, Home and Federal Avenues.

In a recent club contest, J. S. Knutson led master class contenders in a .22 Police Course match scoring 290. Harold Sicard was in second place with 271.

Expert class shooters were sparked by Roscoe Anderson's 278, while Angrim Carlson fired 271. In sharpshooter competition, Les Vivian fired 257, with John Bennett scoring 250.

Bill Worthington's 236 shaded 234 by Marian Bonagura in marksman class.

A .22 Short National match was won by Sicard with 283, followed by Anderson with 280, Knutson with 279, and Ralph Sanderlin with 273.

ARA Calendar

(GD/Astronautics Recreation Association has some 40 activities in operation for employees. For information call ARA headquarters, ext. 1111.)

★ ★ ★

ASTRO DIVERS — Meeting 7:30 p.m., Aug. 8, ARA Clubhouse. Annual picnic La Jolla Shores, 6 p.m., Aug. 18. Reservations with Herm Reichert by Aug. 8.

ASTRO LENS—Meeting at 7 p.m., Aug. 5 at Belmont Park for picture taking session.

ASTRO PLAYERS — Business meeting, 7:30 p.m., Aug. 8, ARA Clubhouse.

ASTRONOMY — Meeting 7:30 p.m., Aug. 8, ARA Clubhouse.

BOWLING — Winter leagues (all types) start second week of September at Frontier, Clairemont, Parkway, Poway, Escondido. Applications welcomed from individuals, teams, or for departmental leagues.

DANCING — Bimonthly Dance-A-Rama opens with first event Aug. 11 at El Cortez Hotel. ARA Band plays for dancing 9 p.m.-1 a.m. Tickets 75¢ per person at employee services outlets.

HAWAII TRIP—Space available through Aug. 8 for trip Aug. 18-Sept. 1. Call Dixie, ext. 1111 for details.

HI-FI/MUSIC — Meeting 7:30 p.m., Aug. 14, ARA Clubhouse. Movie.

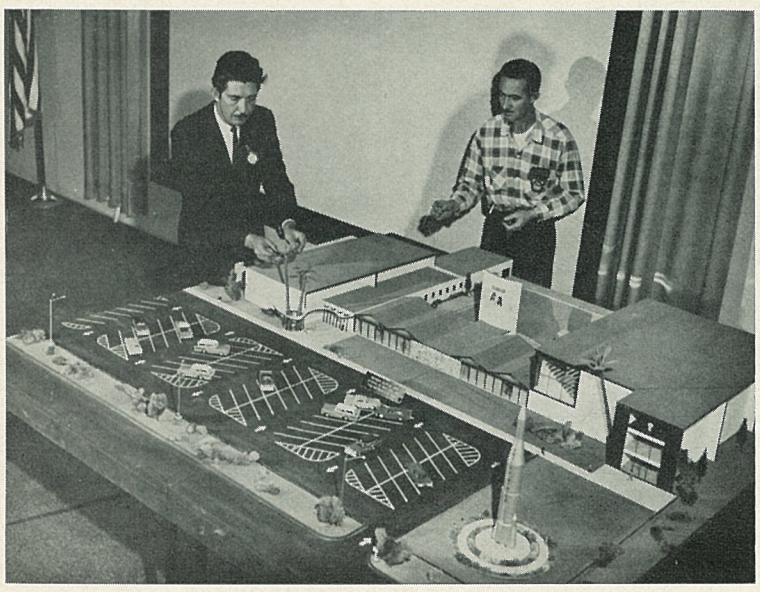
SINGLES — Patio dance, 9 p.m. to midnight, ARA Area, Aug. 3. Admission 50¢ plus Astro ID card. Live music.

PISTOL CLUB—Matches 9:15 a.m., Aug. 12, San Diego Police Range, Home and Federal Aves.

SOFTBALL — Astro vs. Pomona in double header, Aug. 4, ARA Field. First game 6:45 p.m. Admission free; refreshments available.

TEEN-AGERS — Dance 7:30 p.m., Aug. 4, ARA Clubhouse.

WIVES AUXILIARY—Luncheon at Vacation Village, Mission Bay, Aug. 15. Reservations with Mrs. Louis Ferriera, BR-3-7634.



MODELERS—Bert Snellings, left, who designed model layout, and C. M. Ogle, who built it, try out variations of proposed additions to GD/Astronautics recreation area facilities.

SINGLES SHINDIG—Plenty of food, dancing and companionship are featured at frequent activities of ARA Singles Club, as seen in photos taken at recent affair. Open to single adult employees, club has held picnics, dances, steak frys, and beach parties, attracting crowds of up to 100.

Astro, Pomona Teams to Clash

Top-notch softball teams representing GD/Astro and GD/Pomona will meet in a double-header at the lighted ARA Field in San Diego Aug. 4, with the first game starting at 6:45 p.m.

Employees of both divisions and their families have been invited to attend. Admission is free and refreshments will be available.

The Pomona team, under PRA Commissioner Ed Glasson, has a 28-win, 5-loss season record, and no defeats in league competition.

Astro's team leads San Diego AAA play with a perfect record through the first half of the season, and carries an overall tally of 23 wins, 6 losses.

ARA Commissioner Forest Irwin will host an after-game barbecue for Pomona and Astro players and their families in the ARA Area.

Paul Hooten's 74 Wins Gross

Paul Hooten shot a one-over-par 74 for low gross honors in the 0-12 handicap bracket of ARA'S special Golf Sweepstakes at Cottonwood Country Club.

Low net winners in this class were Ray Mendoza with 67, and Jack Weaver and Gene Velasquez with 69s.

In the 13-21 handicap class, Dan Scharlach had the low gross round with 81, while low net golfers were Tom McCubbin (68), Roy Lessard (70) and Jack Boyle (73).

Joe Shuter's 96 was low gross among the 20-and-up handicappers, while Ray Blair, R. R. Reid and Jim Duffy tied with 73s for low net.

Next sweepstakes will be played Sept. 1 and 2 at Fletcher Hills.

Players Find Tasks Varied

Astro Players, ARA drama club, will hold a business meeting at 7:30 p.m., Aug. 8, in the ARA Clubhouse.

Jack Garrison, ARA commissioner, has announced that employees interested in dramatic arts will find opportunity to exercise talents in acting or administrative capacities.

Backstage tasks — publicity, promotion, and production management—provide all club members with challenging assignments.

At present the club is laying plans for "ARA on Parade," Aug. 26; an entry in the Old Globe one-act play tournament; and reviewing scripts for its fall production.

Astro Players meet each Wednesday at ARA Clubhouse for workshop sessions, and conducts business meetings monthly.

Sports & Recreation

'Eagle Deuce' Highlights Play During ARA Golf Sweepstakes

Highlights of ARA's July golf sweepstakes at Circle R included an "eagle deuce" on the 390-yard 7th hole by C. B. Bagaloff, who took low net honors in the 0-11 handicap bracket.

In the same category, young Mike Strada, 15, son of employee services' Lou Strada, fired a net 66 to tie for second with Bob Stevens.

Low gross honors in this class went to Don Cheek with 71, Ray Mendoza with 73 and Paul Hooten with 74.

Bill Couchois shot 74 for low gross in the 12-15 handicap bracket, followed by Tom McColloch's 79. Low net scorers were Harry Bodwell, Hal Wilson and Ted Embree, who each shot 65.

A 77 by Pat Weddle was tops for gross scorers in the 16-22 class, while Jack Boyle shot 84, and Hank Gallant and Joe Wiley, 88s. Low net leaders were Frank White with 65; Chuck Cearley and B. J. Neal with 67s; and Phil Swanson and Ernie Walley with 68s.

Among 23-26 handicappers, R. R. Reid's 85 was low gross, trailed by Verne Boyer with 91 and Lou Canter with 95. E. Z. Hunt had low net of 65, while Don Leggott scored 67 and Pat Patton 68.

Astronomers to Hear About 'Kick Booster'

ARA Astronomy Club will meet at 7:30 p.m., Aug. 8 in ARA Clubhouse.

Following a short business session, Roger Algee, Dept. 541, will address the group, discussing a special space "kick booster."

Astronomy Club meets regularly on the second Wednesday of each month, with these sessions open to all GD/Astro employees and members of their families.

Last Chance Nears For Hawaii Holiday

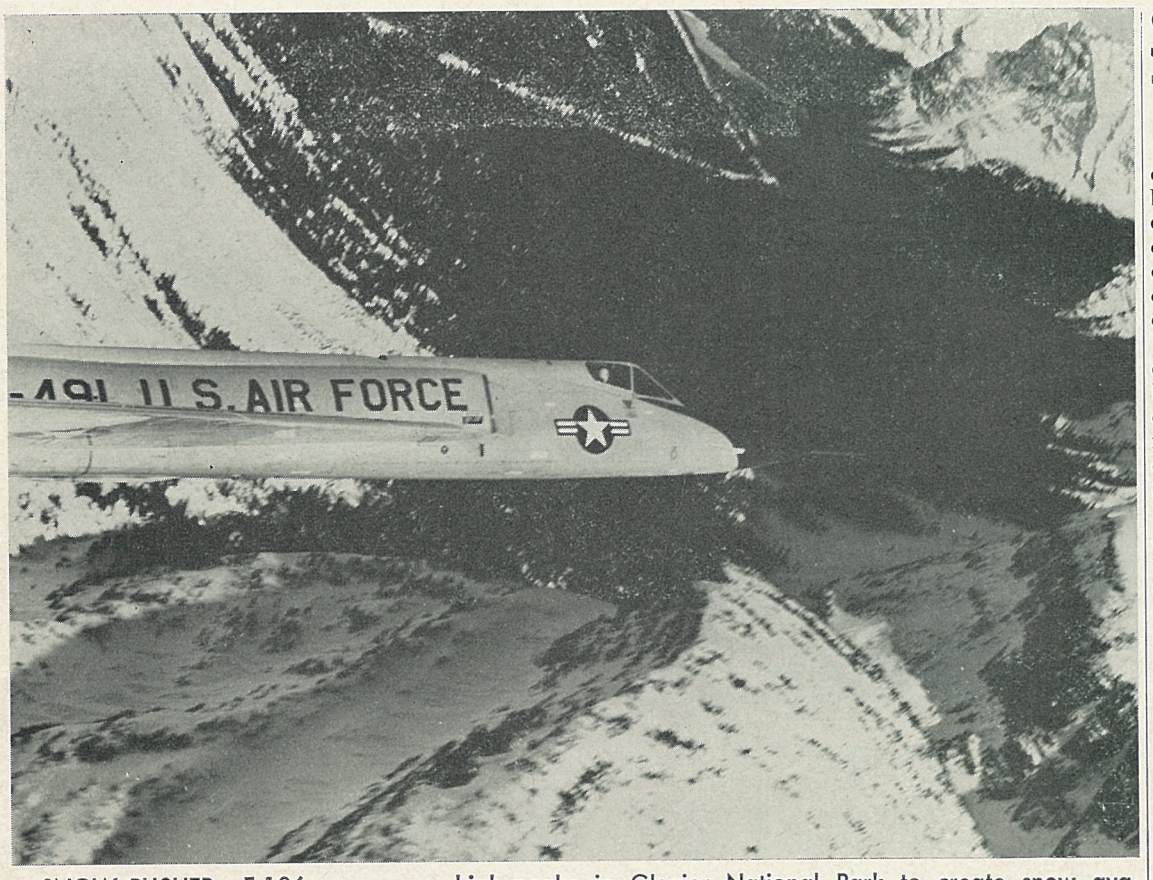
Last call for a gala two-week holiday in Hawaii has been issued by sponsoring Astronautics Recreation Association.

Fourteen "tourists" had signed to date for the trip to the 50th state, and only a few vacancies still remain.

Participants will fly by jet both ways, departing Aug. 18 and returning Sept. 1. Accommodations will be provided at Reef Tower Hotel on Waikiki Beach, and travelers will be feted at a luau and other special events.

Registration will be accepted by Dixie at ARA Clubhouse through Aug. 8. She may be contacted at ext. 1111 for additional information.

WINNERS ALL—Award winners at recent San Diego County Fair are ARA Stamp Club members (kneeling, left to right) H. E. LaNois, Fred Lawson, Don Thompson, (back row, same order) Abe Hurlich, Mrs. Hurlich, Mrs. Thompson, and Jim Rawley. Lawson and Mrs. Hurlich won a second and first respectively with individual exhibits. Club exhibit placed third.



SNOW PUSHER—F-106 zooms over high peaks in Glacier National Park to create snow avalanches with sonic booms before they become danger to traffic below. Air Force photo was shot by 1st Lt. David Rogoway from accompanying plane.

F-106 Sonic Booms Clear Peaks of Shaky Snow

A jet age solution to an age-old problem has sent Convair F-106s zooming over high mountain peaks deliberately creating sonic booms to dislodge tons of snow for the third season.

In "Operation Safe Slide," begun as an experiment three years ago, F-106s from 498th Fighter-Interceptor Squadron at Geiger Field, Wash., have been causing snow slides within Glacier National Park to make it safe during the summer vacation season.

The man-made avalanches have dislodged snow accumulations that have menaced men and equipment for years, says the National Park Service. In 1953 two lives were lost when an unexpected slide swept away a crew clearing a park road.

Jet shock waves prove more durable than the former dynamite method, too, as they are well beyond the range of curious bears. (The park's ubiquitous bears seem to relish the taste of dynamite and gobbled it up for their first spring meal before park engineers could push the plungers on the detonators!)

F-106s fly at low altitudes, around 10,000 feet, at supersonic speeds, directing shock waves at specific snow targets. Missions can be accomplished only under ideal weather conditions on a clear day following a fresh fall of snow.

They have been able to cause snow slides before the snow can become a danger, or pack it to prevent slides later, reports General Dynamics/Convair field service representative, Troy S. Vaughan, supporting F-106s of the 498th.

"Operation Safe Slide" was first tried in the spring of 1960 as a joint project of the Air Defense Command and the National Park Service. (**General Dynamics NEWS**, Feb. 3, 1960.)

NASA Sponsors Solder Course

L. E. Cook of General Dynamics/Convair educational services will attend a special course in soldering techniques sponsored this month by National Aeronautics and Space Administration at El Segundo, Calif.

The two-week session (Aug. 6-17) is being given by the quality division of NASA's Marshall Space Flight Center to define reliable methods of soldering and electrical/electronic equipment assembly meeting NASA requirements.

First week at the School for Reliable Electrical Connections, as the program is known, will be devoted to technical training and the second to instructor training. Attending the course will be NASA personnel, Department of Defense inspectors on NASA contracts, and representatives from companies engaged in NASA work.

Special Process Developed To Produce Two-Color Film

A breakthrough in a little-explored field has been achieved by General Dynamics/Convair quality control laboratory technicians in developing a method of dyeing plastic sheets, half one color and half another, with the colors sharply separated.

Polyester film, two feet long, eight inches wide, must be half blue and half orange for use as an optical filter across the cathode ray tube indicator screen in radars built by GD/Electronics at San Diego.

The plastic works on rollers like a window shade, drawn back and forth across the screen. The orange half of the filter is used when the screen is used for radar scanning mode, the blue half for the television mode.

"The colors in the optical filter must allow at least 79 per cent of the screen's light to be transmitted through it," explained John Barrett, GD/E manager of inspection, who turned to the GD/Convair laboratory for a solution after GD/E's purchasing department searched in vain for a suitable source of supply.

"After combing the country for weeks to find a company that had any experience with this type of work, we located only one vendor who would even attempt the task. And, then on a no-return basis.

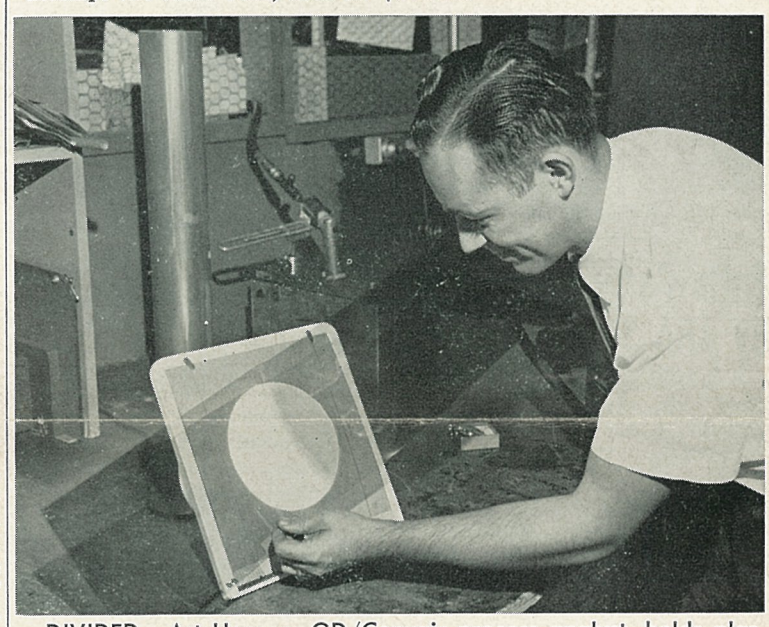
"Quality was so poor, with colors blurred and overlapping, that we could use only about two out of 63, skyrocketing the cost to an exorbitant figure. We were spending over $200 apiece for a usable sheet, after rejects. Original price was $16 each.

"The unusual know-how developed by GD/Convair's quality control lab has cut the cost to around $4 a filter. And, most important of all, even in experimental stage, more than three-fourths of the dyed sheets have been acceptable!"

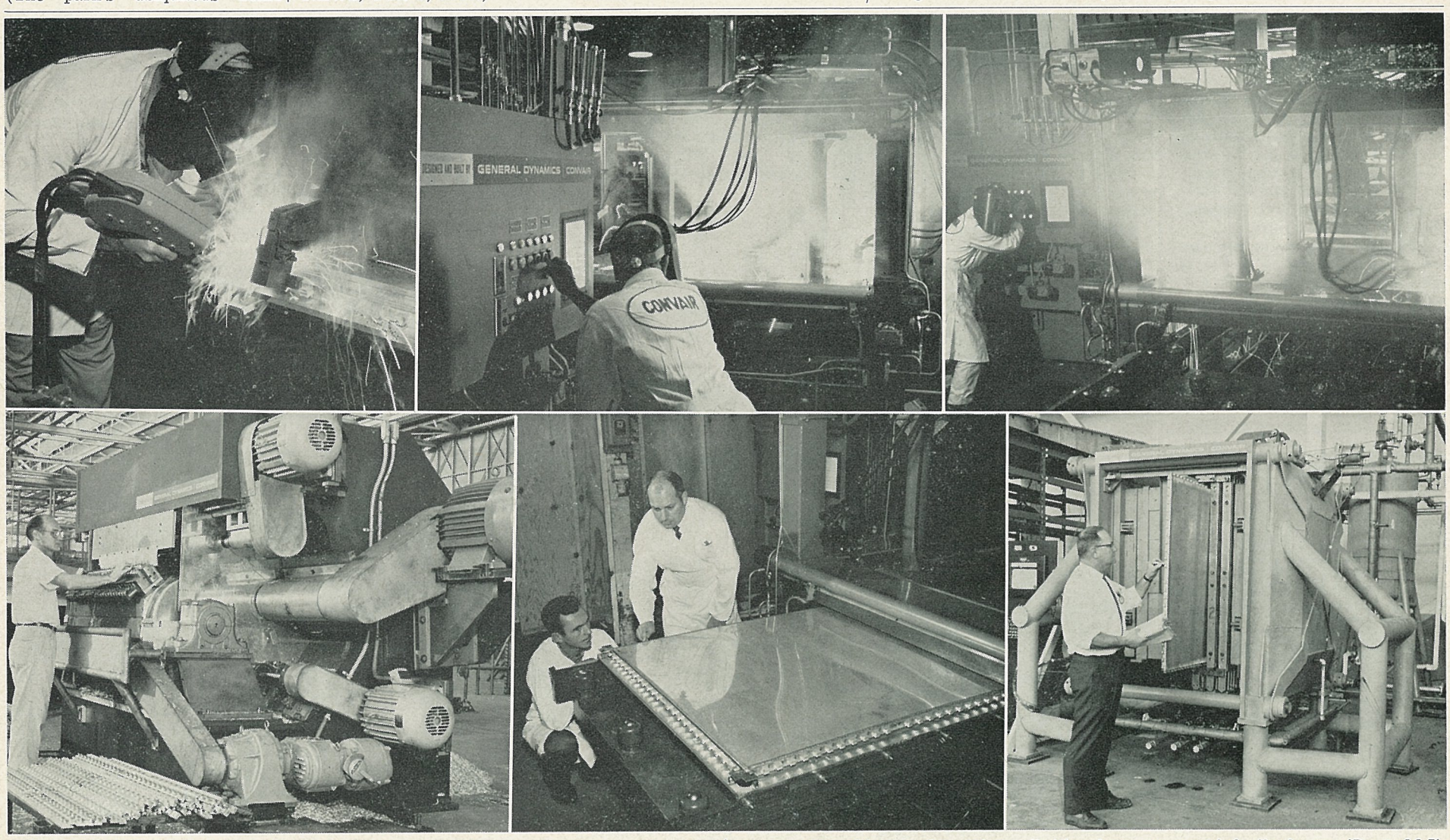
Sam Witkoff, quality control assistant supervisor, credits A. N. Hansen, process analyst, with coming up with the new dye method.

Months of trial and error went into dyeing transparent Mylar plastic before the right combination of oil dyes and heat was found. Now, the film can be impregnated with colors which can't come off or be removed by solvent and which meet evenly with a clean separation of color.

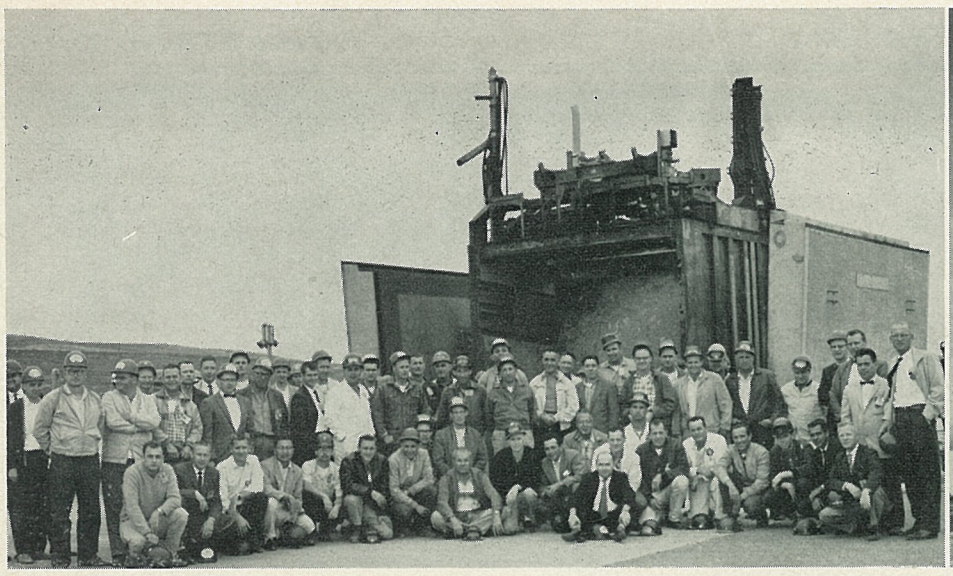
Other assists given by the GD/Convair laboratory to its sister division include development of suitable silver plate for wave guides and IF chassis and checking manufacture of etch circuit boards.

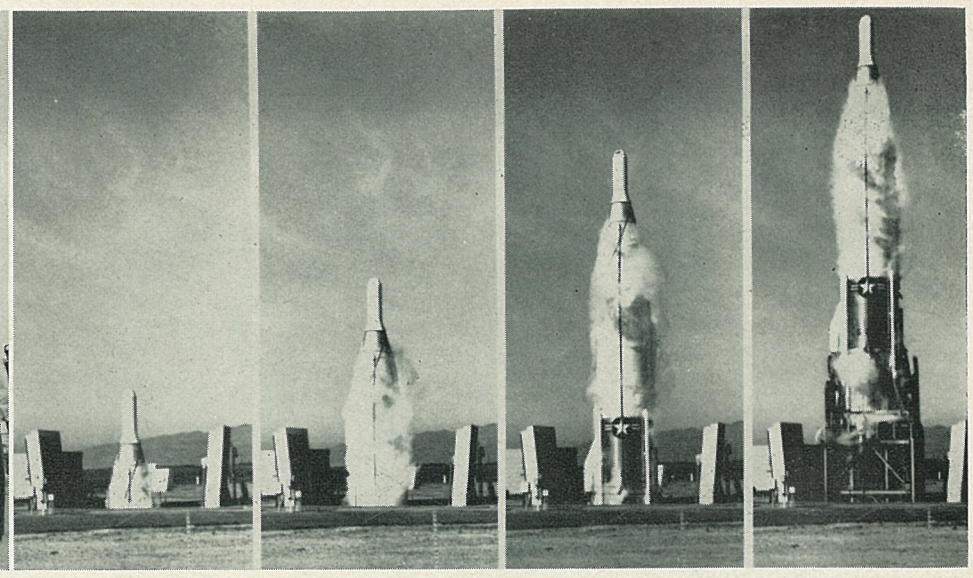


DIVIDED—Art Hansen, GD/Convair process analyst, holds plastic against light to show sharp division of colors (blue at right, orange at left) achieved by new dyeing method.



SPEEDY PRODUCTION—GD/Convair-designed equipment goes into action on pre-production panels for portable landing fields in SATS MATS program at San Diego facility: (top row) photos of automatic welding machine bursting into action. At left, Bill Hutto hand-welds on corner welding machine before panel goes into main welder. Center and right, Wyatt Ingram of applied manufacturing research and development is at controls during 40 seconds of blazing fireworks as four automatic welders seal panel on all sides. Lower row, at left, Jim Lemon (Dept. 115), machine operator, turns out edge members for mats on unique milling machine. Four are milled each minute. In center, Pete Lusk and John Murphy, both Dept. 23, inspect welded panel ejected on conveyer bed of automatic welder. At right, Warren Hoyt (Dept. 23) checks panel during pre-production proofing of GD/Convair-designed vertical bonding machine.





UP FROM UNDER—Sequence photos at right show Atlas "F" missile emerging from silo on successful first launch at Vandenberg AFB. At left are GD/Astro men who participated in preparing facilities and in launch. Note blackened flame bucket. Pad damage was much less than anticipated.

GENERAL DYNAMICS

NEWS

GD

ASTRONAUTICS EDITION

Vol. 15, No. 17 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, August 15, 1962

QUEENS?—Two "junior queens"—one in age bracket 3 to 6 and another in 7 to 10—will be chosen for "ARA on Parade" festivities Aug. 26. Entry blanks are available now at employee services. Leita Mueller, 3, and her sister, Lori, 4 (daughters of F. L. Mueller), Melani Noonan, 7, (daughter of R. W. Noonan) seem unimpressed by regal finery worn by Debbie Parga, 9, (daughter of J. R. Parga).

ARA Will Be 'on Parade' 11 a.m. to 10 p.m. Aug. 26

Final countdown is under way and it appears all systems (planned attractions) are "go" this week as Astronautics Recreation Association preps for an all-family event, called "ARA on Parade", to be held Aug. 26.

Hours are 11 a.m. to 10 p.m. in ARA Recreation Area east of Astronautics' main plant.

Every effort is being made to stagger the many special attractions planned so that families may drop in at any time and find entertainment to their liking. No set schedule has been announced for "Treasure Hunts" for both children and adults which will be staged throughout the day. And a "Mystery Man," in keeping with his role, may appear at any time.

The same holds true for appearances by Buster Carlson and his popular ARA Band, square dance exhibitionists, polka dancers, etc.

Some events, however, must be scheduled, like a giant barbecue dinner to be served from 4 until 8 p.m. Tickets, now available through employee services outlets, are $1 for adults and 50 cents for children. Young beauty hopefuls will parade at 2 p.m. in quest of two crowns. One is the "Junior Miss ARA" title for ages 3 through 6 years, another is "Little Miss ARA" title for ages 7 through 10. Advance registration for this event is required with entry blanks available through employee services.

Door prize drawings will be held on the hour from noon until 6 p.m., with a major drawing to follow later in the evening. Hourly prizes will include portable transistor radios and space clocks. The major prize of the event will

(Continued on Page 2)

NEW MAILING ADDRESS ANNOUNCED FOR BSD

A new mailing address for Headquarters, Ballistic Systems Division, AFSC, has been announced.

New address is Ballistic Systems Division (AFSC), Norton AFB, Calif. Previously, the address was Air Force Unit Post Office, Los Angeles 45.

First 'F' Atlas Launch From Silo Succeeds

VANDENBERG AFB—Another milestone in development of the Atlas weapon system was passed Aug. 1 with the successful first launch of a series "F" Atlas from a silo facility.

Operating from a launch control center to one side of the main silo where the Atlas is stored, a five-man General Dynamics/Astronautics launch crew conducted the relatively short countdown. Monitoring the launch in the control center were representatives from both Strategic Air Command and Air Force Systems Command.

At 2:08 p.m. they pushed the "commit" button that sent Atlas 15-F climbing with its engines generating 389,000 pounds of thrust. In about two minutes the booster section was jettisoned and after five and one-half minutes, the sustainer shut down. Maximum speed attained before the re-entry vehicle plunged into the Pacific near Eniwetok Lagoon in the Marshalls was 15,000 miles per hour.

The Astro crew included Don Fagan, operational projects manager; Bob Daly, test conductor; Dick Smith, assistant test conductor; Alex Mau, launch control engineer; and Dick Bowman, propellant loading system engineer.

While series "F" missiles have been flown in research and development flights from Cape Canaveral, this was the initial launch from a silo lift launcher.

The test evaluated the Atlas weapon system over a predetermined range and demonstrated capability for all missile support systems. It also obtained environmental data for use in the design of advanced vehicles.

At each launch site Atlas is stored with RP-1 fuel aboard in a vertical position below ground. In event of a decision to fire, liquid oxygen is pumped aboard, the giant silo doors opened and the missile raised via elevator to the surface for firing. The vehicle can be launched within 15 minutes.

VANDENBERG AFB — Two Atlas missiles were fired in quick succession here Aug. 9 by an Air Force missile combat crew from the 389th Strategic Missile Wing (Warren AFB), Strategic Air Command.

It marked the first occasion in which multiple countdown and launch procedures have been followed through to actual launch.

The missiles were programmed for about 5,000 statute miles down range.

Dynamics Reports First Half Profit

For the three months ended June 30, 1962, net income of General Dynamics Corporation amounted to $12,108,221, equivalent to $1.22 per common share.

This represents an improvement over the $1.07 per share earned in the first quarter of this year on approximately the same amount of sales, Roger Lewis, General Dynamics president, announced last week.

"For the six months ended June 30, 1962, earnings before income taxes came to $23,835,228. Due to the tax credit resulting from our prior year's loss, no federal income tax has been charged against the corporation's income," Lewis explained. "After tax provision on earnings of subsidiaries, consolidated net income for the six months amounted to $22,844,417, equivalent to $2.29 per common share. In the first half of the previous year, we had a net loss of $55,674,379, or $5.57 per share.

"Sales for the first half of the current year amounted to $1,057,-395,704, approximately equal to sales of $1,010,887,737 in the first six months of the preceding year. Volume in the second half will be lower as a result of the phasing-out of B-58 bomber production and of the Atlas base activation program. We are seeking new major programs to succeed these.

"Meanwhile, we have continued to obtain many substantial new contracts throughout our widely diversified operations. New orders for the first six months of 1962 amounted to $653,000,000, an increase of 26 per cent over the $519,000,000 in new business booked in the first half of the previous year."

Electronics, Nova, Added To Projectized Groups

Creation of two additional project organizations at General Dynamics/Astronautics has been announced by J. R. Dempsey, president.

Electronic programs project organization continues under the executive direction of S. L. Ackerman, vice president and program director.

Named program director—Nova is Andrew Kalitinsky.

Ackerman has four assistant program directors, each responsible for a program office. They include: T. H. Scholder for GLOTRAC; L. Emmerich for AZUSA; H. M. Ikerd for ARENTS; and C. L. Bates for scientific passenger pods. Rounding out Ackerman's staff are G. G. Prentice, manager of program control; C. A. Paul, manager of manufacturing operations; J. F. Langston, manager of field operations; D. C. Prim, manager of trajectory measurement and control; E. C. Lindkvist, manager for the ARENTS satellite; and P. V. Smith, manager for scientific passenger pods. Yet to be named is a reliability control function head.

Like other project organizations recently created at Astronautics, electronic programs project office will have prime responsibility for budgets, expenditure of funds, schedules and program performance including engineering, field assembly, checkout and field operations on all present and follow-on electronic contracts.

While work on the Nova launch vehicle is being centralized into a project organization, no separate departments are being established. Project personnel will be provided by assignment from existing departments. This is to continue during study phases.

Three executives report to Kalitinsky. R. P. White is deputy program director; J. P. Wamser, manager of design engineering; and J. C. Duffy, manager of manufacturing engineering. Additionally, three key men will act on a part-time basis, reporting to Kalitinsky for their activities on the Nova program. They are P. D. Ferrara, deputy director for program administration; T. L. Maloy, manager of test planning and facilities; and C. G. Keach, manager of material and subcontracts.

★ ★ ★

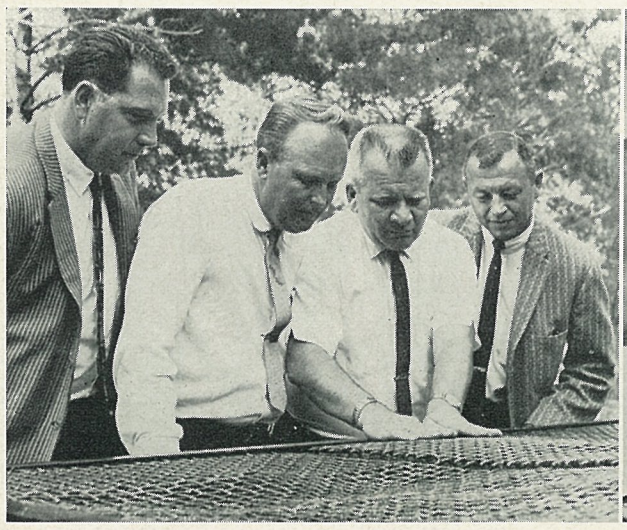
Financial, Contracts Managers Appointed

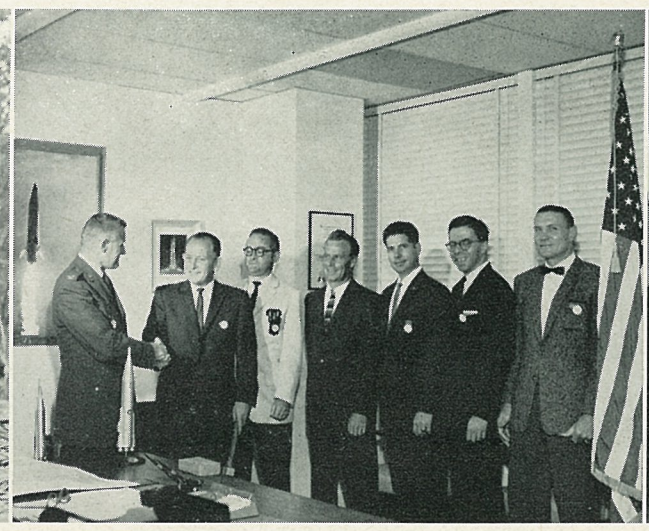
Managers of financial control and managers of contracts have been named for each of the four major project line organizations within General Dynamics/Astronautics by President J. R. Dempsey.

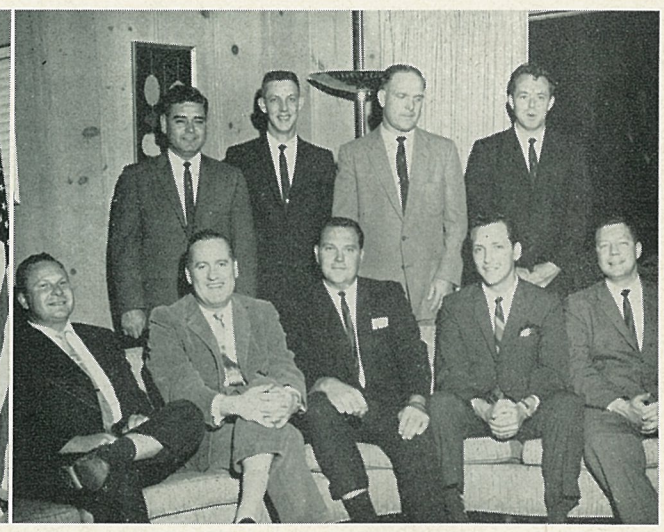
Appointees become additional staff members of the organization, reporting directly to the Astronautics vice president and program director for each project, respectively.

J. B. Morgan, manager of financial control, and A. T. Woods,

(Continued on Page 2)







CLUB AFFAIRS—Newly installed officers of GD/Astro Management Club at Vandenberg AFB are shown at right with President Auggie Daddi seated center. Others, from left, seated, are Ron Baird, Robert Burns, Roy Woodle, Pat Knuth. Standing are Vic Cardiel, James Wells, Norman Bennett and William Donnelly. In photo at left, Daddi, Ross Workman, George Holanik and Casey Cazessus inspect facilities at Waller Park near Vandenberg prior to picnic this month. Center photo: AFPR Management Club at GD/Astro named new officers recently. Col. H. E. Moose, AFPR, congratulates new president, Royce Hulsey, while outgoing president, John Mraz, receives "well done." AFPR group has suspended operations for summer; will resume regular meeting schedule in September.

Log Book Entries

Service Emblems

MAIN PLANT

Service emblems due during the period Aug. 1 through Aug. 15.

Twenty-five-year: Dept. 141-4, V. S. Caldwell.

Twenty-year: Dept. 401-5, C. A. Suvada; Dept. 403-1, N. D. Tracy; Dept. 756-0, W. F. Louden; Dept. 759-0, R. S. Flores.

Fifteen-year: Dept. 343-5, Alton Tyler; Dept. 452-0, V. A. Miller; Dept. 480-0, N. J. Nicholas; Dept. 539-5, J. W. Cates; Dept. 595-1, R. G. Norell; Dept. 781-0, Alice W. Goldman; Dept. 958-1, A. M. Ney.

Ten-year: Dept. 101-7, Annagene W. Whitworth; Dept. 143, Charlotte L. Fournier, R. A. Ihde; Dept. 144-3, L. W. Reed; Dept. 191-0, H. P. Hurt, J. J. Janda; Dept. 290-1, G. A. DiMatteo; Dept. 321-5, W. J. Kiley; Dept. 331-1, Edith N. Deuel; Dept. 335-2, J. A. Starr; Dept. 337, P. R. Fountain, Zora S. Peck; Dept. 454-0, J. F. Platt; Dept. 461-0, Bennie Griffiths; Dept. 523-6, J. G. Bingham Jr.; Dept. 538-7, E. D. Jones Jr.; Dept. 545, R. E. Bailey, F. J. Markwith; Dept. 758-0, S. C. Brogan; Dept. 759-0, Edna M. Callahan; Dept. 773-0, P. R. Lewellen Jr.

ALTUS AFB

Twenty-year: Dept. 617-0, W. B. Utley Jr.

DYESS AFB

Twenty-year: Dept. 618-3, T. J. Colston.

Fifteen-year: Dept. 618-2, W. W. Martin.

Ten-year: Dept. 618, O. M. Dixon, B. A. Graham.

LINCOLN AFB

Fifteen-year: Dept. 616-3, R. M. Golden.

Ten-year: Dept. 616, J. F. Pickering, V. E. Snyder.

PLATTSBURGH AFB

Twenty-year: Dept. 620-3, P. W. Brock.

Ten-year: Dept. 620-6, J. M. Seery.

WALKER AFB

Fifteen-year: Dept. 619-3, A. R. Bowers.

Promotions

MAIN PLANT

Transfers to or within supervision effective July 30:

Dept. 101-7, Data Processing: To group engineer, R. E. Snyder.

Dept. 175-0, PACE Services: To PACE program administrator, L. G. Lapthorne.

Dept. 222, Production Control: To production control general supervisor, J. R. King. To production control supervisor, C. B. Hill.

Dept. 322-7, Support Publications: To support publications asst. supervisor, E. W. Lind.

Dept. 335, Service Parts: To GFE supervisor, R. K. Byers. To GFE asst. supervisor, H. Skidmore. To support logistics asst. supervisor, C. R. Flowerree.

Dept. 351-3, Field Modification: To material control asst. supervisor, K. R. Farnsworth.

Dept. 535-5, Design Section: To design group engineer, A. M. Colvin.

Dept. 756-0, Engineering Test Support: To asst. foreman, A. D. Parsons.

Dept. 954-3, Centaur Program Control: To office services supervisor, C. B. Burkholder Jr.

Dept. 958-6, Centaur Reliability Control: To reliability group engineer, A. J. Treantos.

PLATTSBURGH AFB

Dept. 539-8, GD/Astronautics Activation Engineering: To activation engineering asst. supervisor, J. Lippitt.

WALKER AFB

Dept. 539-7, GD/Astronautics Activation Engineering: To design group engineer, R. L. D'Abadie.

Births

MAIN PLANT

HERBERT — Daughter, Lori Lynn, 7 lbs., 10 oz., born July 3 to Mr. and Mrs. Clayce L. Herbert, Dept. 783-0.

VANDENBERG AFB

RIEPE — Daughter, Meisheil Ann, 4 lbs., 15 oz., born Aug. 4 to Mr. and Mrs. Richard R. Riepe, Dept. 333-1.

Deaths

MAIN PLANT

ROBINSON—Averill M., Dept. 143-3. Died July 26. Survived by husband, Charles B. ----

Personals

VANDENBERG AFB

My sincere appreciation for the many kindnesses shown me following the death of my father, S. B. Ardoin.

Joe Ardoin, Dept. 576.

ARA WILL PARADE FEATURES AUG. 26

(Continued from Page 1)

be a color TV set.

Only employees are eligible for the door prize drawings. Special brochures on ARA are being mailed to the homes of all employees. They contain a special insert dealing with "ARA on Parade" which includes a blank section to be filled in by the employee. This section, plus an Astro "ID" card, is necessary to enter the drawing.

Free rides for all the kids will be in operation from 11 a.m. until 7 p.m. and concession stands featuring refreshments and light food items open throughout the day.

Also open throughout the day will be special exhibits featuring each of the more than 45 activities sponsored by ARA. In these, employees and their families may see the activity in action, ask questions, or watch special live demonstrations.

The entire Recreation Area will be roped off for the event, with parking on Astro's parking lots. Exhibits will be centered around ARA Clubhouse. However, plans call for spreading portions of the festivities throughout the 25-acre tract.

Families who like may bring picnic lunches and take advantage of the many facilities found in the area. Or they may buy items from the concession stands or even wait for the barbecue dinner later in the evening.

General Dynamics NEWS

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GD/Electronics (San Diego) news contact: Betty Freeby, CY-8-4641, ext. 1377, Plant 1, Bldg. 51.

Fort Worth Editorial Offices, Col. 72, Admin. Bldg., GD/Fort Worth, Mail Zone 0-50, P.O. Box 748, Fort Worth 1, Texas. Telephone PErshing 8-7311, ext. 2961. Staff: Dave Lewis, editor; Mary Beck.

Pomona Editorial Offices, Room 106-D, Bldg. 1, GD/Pomona, Mail Zone 3-3, P.O. Box 1011, Pomona, Calif. Telephone NAtional 9-5111, ext. 6226-5279. Staff: Glenn Kehr, editor; Carol Sowers. Daingerfield news office, P.O. Box 947, Daingerfield, Texas. Telephone Lone Star, Texas, 2211, ext. 424.

* * *

Affiliated editions of General Dynamics NEWS are published in Rochester, N. Y., covering GD/Electronics and GD/Telecommunication, editorial offices, 100 Carlson Road, HUbbard 2-2200, ext. 2555, Gordon Morison, editor; and at Groton, Conn., covering GD/Electric Boat, editorial offices at Groton, HIlltop 5-4321, ext. 300 and 513, Joseph Tracey, editor.

Hulsey Heads AFPR Club

Royce Hulsey heads a new slate of officers recently installed by the Air Force Plant Representative's Office Management Club at General Dynamics/Astronautics.

Others installed include Lawrence Kramer, vice president; Felix Biramontes, secretary; and Charles Drovacek, treasurer.

At the installation meeting Lt. Col. Robert Kelly discussed the work of the AFPR development engineering division which he heads. The club's "Man-of-the-Month" award went to Donald E. Smith. John Mraz, outgoing president, lauded the work of his officers and board members.

Club meetings will resume in September following a summer layoff.

English Course Proves Popular

One of the most popular courses ever offered to General Dynamics/Astronautics employees has attracted 1,600 students to date and remains open to all who care to take it. This is "Practical English and the Command of Words."

The $48 course is available to Astro folk for only $18. No class attendance is required, nor written assignments included. Applicants fill in special request forms and take home a binder with the first 12 lessons. Thirty-six additional lessons will be mailed direct to the student's home, as will a bill for the entire course ($18).

Initial applicants will be able to pick up binders between Aug. 27 and Aug. 31 from the Astro Management Club boosters listed below, where samples of the course also may be seen.

At Plant 71, R. T. Bauman (Dept. 756-0), Bldg. 5, Col. F-2; at Plant 1, R. S. Barlow (Dept. 756-0), Bldg. 18; at Plant 2, L. Rodrigues (Dept. 337-1), Bldg. 4, Room 210; at Plant 92 (materials buildings), Al Amison (Dept. 224-0), Col. H-8; and at Sycamore Canyon, E. S. Ely (Dept. 573-5), Administration Building.

Electronic Depts. To Number 010-035

Department numbers for the recently-created project organizations at General Dynamics/Astronautics have been announced.

Employees working in the new electronic programs organization will work in departments numbering from 010 through 035. Atlas weapons system program employees will fill departments numbered from 360 through 390. Space launch vehicle program employees are being assigned departments ranging from 630 through 680.

Centaur program personnel continue in departments numbering from 950 through 979.

No separate department numbers are being assigned to the Nova project organization during study phases.

Mercury-Atlas Heads For Cape With Best Wishes of Astronauts

Atlas 113-D, a Project Mercury "bird", departed San Diego for Cape Canaveral Aug. 7 amid more fanfare than accompanies most Atlas shipments.

Members of news media were invited to watch and photograph the missile being removed from the factory, prepared for shipment, then sent along its way to Miramar NAS and a flight east aboard a C-133B transport.

Atlas 113-D has a special role to fill, possibly as the launch vehicle for Astronaut Walter Schirra Jr. who has been tabbed for the next manned space flight. His flight has been programmed for six orbits, instead of the three followed in other successful Atlas-powered flights with Astronauts John Glenn and Scott Carpenter.

These two had left their special requests to the men and women who had built and checked out Atlas 113-D. Penciled on a Project Mercury decal attached to the nose was this message: "Treat this one with the same 'tender loving care' we had on 109 and 107—All systems Go." The Astronauts had signed the message.

Glenn rode Atlas 109-D and Carpenter 107-D.

Project Line Appointments

(Continued from Page 1)

manager of contracts, were named to the staff of C. S. Ames of the space launch vehicle project.

R. J. Riddell, manager of contracts, and B. J. Neal, manager of financial control, have joined the staff of W. L. Van Horn in the Atlas weapon systems organization.

Reporting to G. L. Hansen in the Centaur project are J. C. Cannady, manager of financial control, and T. C. Courington, manager of contracts.

Rounding out the appointments are C. J. Marsden, manager of financial control, and C. W. Power, manager of contracts for the electronic programs office headed by S. L. Ackerman.

Project Reliability Managers Appointed In Three Activities

New executive assignments within the General Dynamics/Astronautics reliability control department have been announced by J. R. Dempsey, president.

Reliability control project managers have been chosen for three recently projectized organizations, including D. R. Archibald for Atlas weapons system; W. J. Maloney for space launch vehicle; and D. L. Hill for electronic programs. Archibald also continues to serve as quality control manager.

R. H. Gilliland has been named quality assurance manager and E. S. Winlund, reliability control engineering manager.

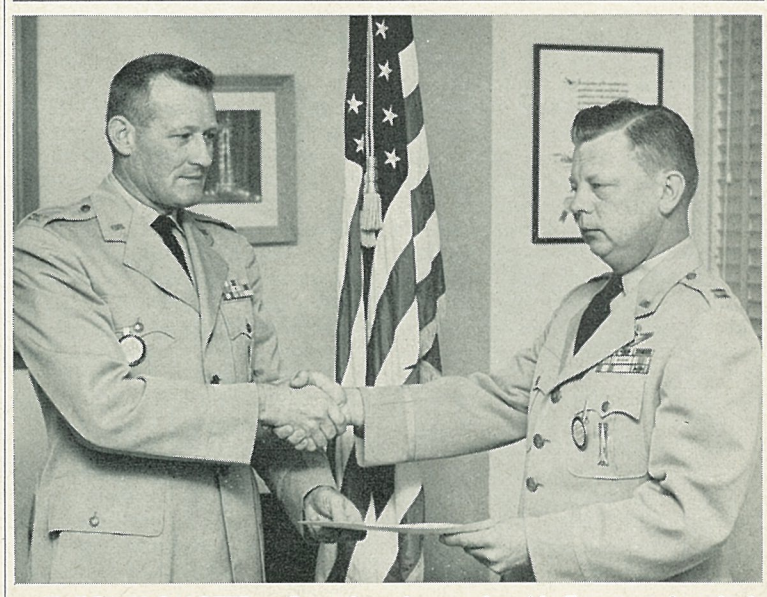
Those appointed continue to report to P. I. Harr, director of reliability control.

Dempsey also announced plans for the consolidation of all calibration activities within the reliability control department. A. J. Woodington has been placed on special assignment under Harr to prepare plans and schedules for the effort. Heading the engineering standards laboratory during Woodington's absence will be J. E. Vondracek.

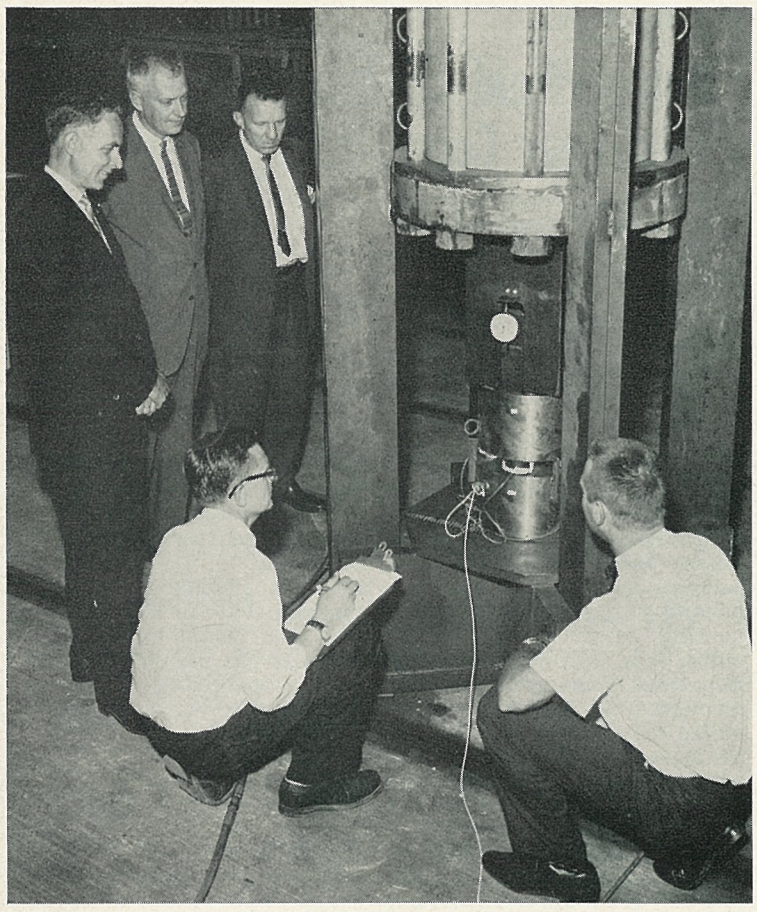
Vandenberg Dinner And Dance Planned

VANDENBERG AFB — Product Support (Dept. 300) employees among GD/Astro forces here are planning a gala dinner-dance from 6:30 p.m. to 1:30 a.m., Aug. 18 at the Santa Maria Country Club.

Dinner from 7:30 to 9 p.m. will follow a social hour with dancing later. Ticket price is $5 per person. Tickets are available through Dept. 300 supervision.



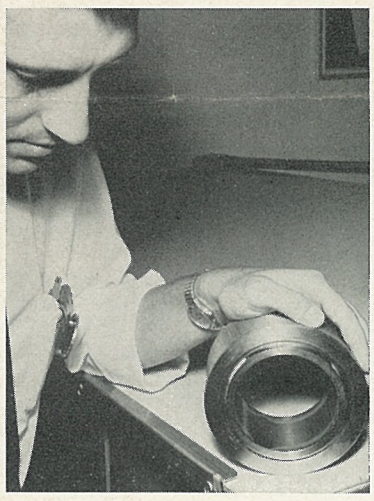
TWICE PROMOTED—Captaincy in regular Air Force and major's commission on reserve list fell to Maj. John M. Mickelson recently. He is shown at right receiving congratulations from Col. H. E. Moose, AFPR at GD/Astro. Mickelson is in development engineering division of AFPR.



HEFTY LOAD—C-141 engineers and manufacturer's representative form interested group as G. D. Lindeneau and John Gillette of GD/Convair structures lab take readings during over-million-pound loading of C-141 bearing. Standing, from left, are R. W. Miller, GD/Convair C-141 project engineer; D. H. Koozer, Lockheed C-141 engineering representative; L. H. Dornberg, chief engineer of Southwest Products Co., company producing bearings.

Million Pounds of Load Placed on C-141 Bearing

A pivot bearing, designed for the C-141 empennage, recently withstood over a million pounds of load, largest concentrated load ever applied at a single loading point by GD/Convair structures laboratory test engineers.



MIGHTY SPHERE—Ed Schiff of GD/Convair structures lab balances C-141 pivot bearing undergoing structures tests at San Diego facility.

The steel bearing, a self-aligning spherical type manufactured by Southwest Products Co. of Gardena, Calif., is now in a series of structural checkouts at the San Diego ramp facility.

Two of the bearings, 5½-in. in diameter, 3 inches thick, will be built into the vertical stabilizer as pivot points for the horizontal stabilizers of C-141 empennages under construction at GD/Convair.

First test at the structures lab saw a bearing take a load of 1,140,000 lbs. The hydraulic cylinder used for loading, designed and built in GD/Convair's structures lab, is one of the few in the country capable of applying over a million pounds of load, said Ed Schiff, structures lab assistant group engineer.

The bearing was positioned in a three-inch-thick support block, covered with an outer block, or clevis, with a 3½-inch shaft running through both clevis and bearing. Dynamometers, or load cells, were strain-gauged to measure load as the ram of the cylinder was pushed onto the clevis at loads from zero to the 1,140,000-lb. maximum.

Fatigue tests now are under way with the bearing to be put through a million cycles at various loads and rotations at low frequencies. Dynamics testing will see the bearing undergoing high frequency oscillations, simulating flutter, through 4,500,000 cycles.

Monitoring the test program are Dave Fletcher, John Gillette, and G. D. Lindeneau, structures lab test engineers; R. C. Westbrook and R. A. Close, C-141 stress and design engineers.

Dynamics Men Will Instruct

Eighteen General Dynamics men will be on the University of California Extension faculty for the fall semester starting the week of Sept. 17.

GD/Convair instructors will be W. H. Goggin, educational services supervisor; J. J. Harton, senior dynamics engineer.

From GD/Astro will be John K. Dienes, design specialist; Raymond A. Elliott, design specialist; James F. Haskins, staff scientist; Robert M. Jirgal, assistant supervisor of base activation PERT group; W. Duane Montgomery, staff scientist; Cyril H. Nute, senior research engineer; Alfred F. Schmitt, dynamics group engineer; Herbert J. Swanson, engineer in manufacturing proposals and contracts; Ernest Wade, senior project engineer; Bruno F. W. Witte, design specialist.

Representing GD/Electronics is William C. Slagle, electronic engineer.

Five General Atomic specialists are Gilbert B. Melese, Charles O. Peinado, Carlo Riparbelli, Marius Troost, Nils F. Wikner.

Spare 440 Wing Shipped to Europe For Use on Fire-Damaged Aircraft

A Convair-Liner 440 wing leaves San Diego this week, bound for a foreign port, only transport wing ever supplied a customer since the first Convair 240 went to an operator some 14 years ago.

The traveling wing, 101½ feet long, is moving via a motor ship, the MS Korotan, to replace one damaged by fire on a European airline's Convair 440. John Morey of General Dynamics/Convair major mate is accompanying the huge part to supervise installation operations.

"Although this is the largest part we've ever been called upon to furnish a customer, it points up the fact that we have every part on hand at all times to support the 1,000 Convair transport planes in use all over the world," said John Doig, manager of service parts.

"And, as long as Convair planes are in operation any place, our service parts operation will be ready to send parts anytime to any place in the fastest possible time."

GD/Convair service parts stocks 15,000 different spares for the Convair-Liner series — 240s, 340s, 440s — and 22,000 jet transport spares for the more than 130 airline operators flying Convair planes, explained Doig.

And, the service parts department provides round-the-clock service, 24 hours a day, seven days a week!

GD/Convair's spares system is known as one of the most advanced in the industry with its use of high-speed IBM data processing equipment developed in cooperation with the Air Transport Association.

Almost 2,000 purchase orders for parts were processed for commercial customers during the first six months of this year, and at least that many more are expected to pass through the hands of service parts personnel during the rest of the current period, say GD/Convair service parts supervisors.

The cocooned 440 wing was sprayed with a liquid envelope under supervision of J. J. Janssen, packaging specialist at Rose Canyon. The three layers of grey preservative compound will be peeled off when the wing reaches its final destination.

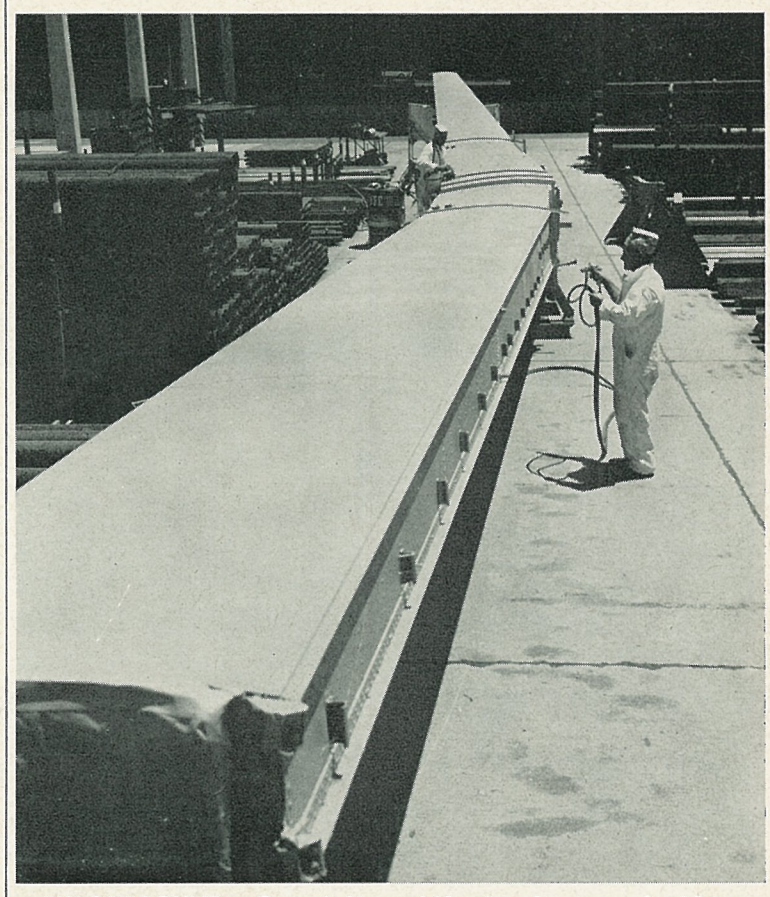
Loaded on a GD/Convair semi-trailer, it was moved gingerly down a route from Rose Canyon, along Morena Blvd., Kettner Blvd., to Harbor Drive and to the loading dock at the Tenth Ave. terminal. Transportation operations had charge of the long, careful haul by truck.

Special highway permits had to be obtained to allow its parade across town, said Jack Sheldon, traffic administration supervisor.

Once aboard the cargo ship, carrying a load of grain from Seattle, which had stopped at San Diego Harbor for the sole purpose of picking up the huge part, the wing will be anchored securely to the deck for its ocean voyage.

And, as a sidelight to obstacles surmounted, a bore and ream fixture was sent by Canadair Limited to the San Diego plant for drilling and reaming attachment fittings so the wing will line up exactly when it is finally attached to the 440 fuselage.

Present emergency brings memories of a couple of other incidents, only ones comparable in the long history of Convair transports — "Operation Cornfield," in 1955 when a Convair 340 was demated in an Iowan field, brought back to GD/Convair, repaired, and flown back to the operator intact. A couple of years later a wing was salvaged from a plane downed in Shreveport, La., returned to the San Diego plant, where it was mated to a new fuselage to put the operator back in business.



EUROPE-BOUND—Convair-Liner 440 wing is sprayed with preservative compound by Ed Rinks and Lloyd Schmitz of GD/Convair field operations before it leaves San Diego plant for foreign port to replace damaged wing of European Convair 440. It is largest part ever required and is dramatic illustration of GD/Convair's capability in spares support to airlines.

Continuous Contact Maintained With Jet Aircraft Customers

A seven-foot stack of messages, which if spread out would stretch —from here to there—represents the thousands of queries from, and replies to, Convair 880, 880-M, and 990 operators over the last two years.

L. J. Bordelon, chief of service engineering at GD/Convair, piled up the entire correspondence file to take a good look at the 18,000 pieces of paper which have passed through the hands of transport service department since Convair jet transports went to the first customer.

"These are only the priority letters and telegrams flowing to and from 880 and 990 customers concerning technical matters handled by our teletype connection with the General Dynamics switching center. They do not include the mountain of field reports from service engineers or such miscellaneous material as blueprints from the customers which need no reply," he pointed out.

WHEW!—Larry Bordelon, GD/Convair chief of service engineering, seems slightly aghast at tremendous pile of messages handled through his department in assistance of Convair aircraft customers.

As the 880s and 990s have gone into service, Bordelon continued, service engineers in the field, averaging around 25, and equal number of transport service people at the San Diego plant maintain constant and fast communication in assistance of customer airlines on all maintenance, operational, and overhaul matters.

Direct teletype connections have joined GD/Convair's transport service group with Delta, TWA, Northeast, American Airlines at New York, Swissair at Zurich, Switzerland, Japan Air Lines at Tokyo. Other operations are given equivalent communication service by regular commercial systems.

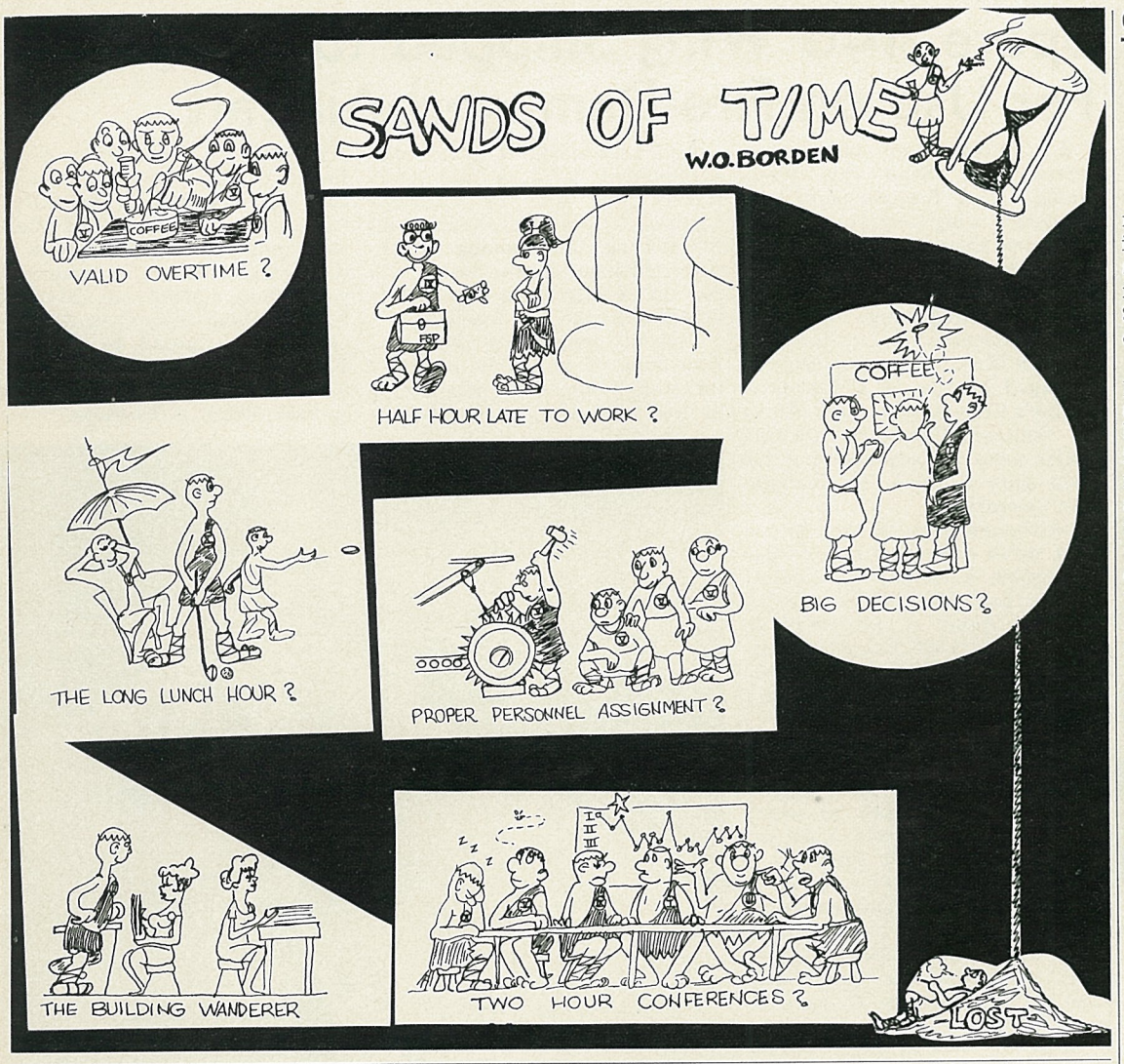
And the communication service is even more automated with master ditto rolls on the teletype so that copies may be run off immediately with no delay in clerical work. Field reports from service engineers also are received on master dittos.

As the transport service people make the move this month from Bldg. 19 to second floor of Bldg. 5 within Plant 1, business will go on as usual.

"We will continue to keep abreast of any knowledge that can help present and future jet transport customers," stressed Bordelon. "And, we certainly don't expect any leveling off of the current communication load in the foreseeable future.

"Any request for information that is too urgent for mail response, will continue to be handled immediately by wire or phone!"

In addition to support of jet transport customers, the transport service section also devotes as much as two men's time consistently to assistance of Convair-Liner operators all over the world, he added.



Experimental Airplane Builders 'Scrounge' Parts From Anywhere

By "scrounging" parts from old military aircraft, lawn mowers, used cars — and heaven knows what else—a handful of General Dynamics/Fort Worth people are building their own private planes dirt cheap: from $600 to $800.

They're members of DALWORTH (Dallas-Fort Worth) Chapter of Experimental Aircraft Association, a group of hardy aerial enthusiasts dedicated to "flying for the fun of it."

Membership ranges from landlocked tyros to veteran command pilots of World War II vintage.

And projects in work range from a bi-plane that's no longer built commercially, to a snazzy French two-seater.

The 650-pound bi-plane, with 17-foot wing span and 15-foot, 1-inch fuselage, is being built by Ben Whitten, engineering clerical supervisor. He's being helped by a former GD/FW employee, Tommy Johnston.

When Whitten takes his two-winged craft aloft this fall for FAA certification flights, it'll admittedly be a nostalgic occasion.

"When I was a kid of 10, we'd work all day to hook a flight with a visiting barnstormer," said Whitten.

His aerial hitch-hiking earned him a ride with, among others, Lou Foote, Texas aviation pioneer. Later, he was to fly the first Taylor Cub (forerunner of the Piper Cub) in Texas.

Since then, Whitten has flown 31 combat missions in B-17s in Europe, and C-54s for MATS during the Korean War.

Ken Morris, in AFPRO engineering support, says he's building his economy-sized "spare parts" low-wing, single-seater for about $600.

"I'm using parts from lawn mowers, unlisted military airplanes and surplus parts," Morris said.

Powered by a Lycoming 65 hp engine, the plane will be of conventional lightweight construction and cruise at about 100 mph.

Morris isn't new at aircraft construction. In 1940, while in high school, he built and flew a primary glider. During World War II he flew B-24s and B-29s. He also saw service in Korea.

A relative newcomer to the flying game, Jim Wallace, senior engineering administrative assistant is building an AY-20 Minacab.

The French design two-seater, with 85 hp engine, will cruise at 135 mph.

"I have the horizontal tail group about ready to go together," said Wallace, whose garage is his workshop.

J. Floyd Blair, engineering publications editor, returned from EAA's National Fly-In at Rockford, Ill. Aug. 1-5—ready to resume work on his cantilevered low-wing, single-place, fully acrobatic plane. Powered by an 85 hp engine, its cruising speed is 140 mph.

Blair is president of EAA's local chapter.

"Actually, it's an association project," said Blair. "Two people from Fort Worth, three in Arlington and two in Dallas are assisting in construction."

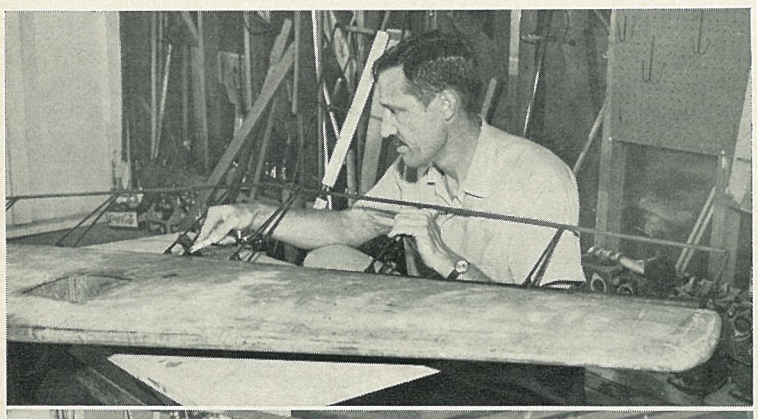
A former veteran flying instructor for the Navy, Blair is an enthusiastic backer of the work being done by EAA.

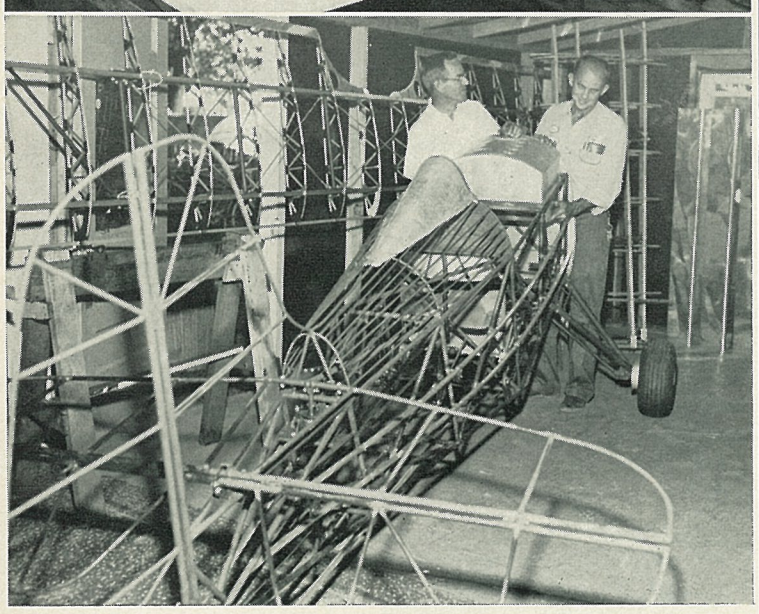
"We build airplanes for the pride of craftmanship involved," he said, "and we fly them for enjoyment.

"Although many of our members are veteran flyers and planebuilders, others learn from the ground up," he added.

EAA has actually had members learn to fly while building their own planes.

Other GD/FW employees currently active in EAA include: B. J. McWhorter, group engineer digital computer; Vic Patoski, senior design engineer; Bob Carver, flight test engineer; S. J. Cichon, development liaison man.





TAKING SHAPE—In top photo, J. Floyd Blair, Dept. 6 at GD/FW, works on component for single place plane he is building, while below Ben Whitten, also Dept. 6, gets assist from Tommy Johnston during bi-plane construction.

CAPT. CRENSHAW POMONA VISITOR

Capt. R. S. Crenshaw, director of Anti-Air Warfare Programs division for the Chief of Naval Operations, visited General Dynamics/Pomona Aug. 8. Capt. Crenshaw played an important role for the U. S. Navy during development of the Terrier program.

Off to Africa

Daingerfield Engineer Accepts Two-Year Congo Assignment

W. A. Reed, senior thermodynamics engineer, General Dynamics/Pomona, Daingerfield Division, his wife, Ruth, and their four young daughters left Aug. 9 by jet airliner for the Republic of Congo.

Reed, a General Dynamics employee for 14 years, resigned to accept a two-year appointment by the Christian Church to work in the missionary field as engineer in charge of construction and maintenance. He will also be in charge of an amphibious Cessna 180 which he will pilot, carrying missionaries and supplies to various stations. Due to political unrest in Katanga his duties will be restricted to the Equatorial Province of the Congo. Since he has recently acquired his amateur radio license he expects to set up a station which will be the first direct radio connection between missionary headquarters in Indianapolis and the Congo. Reed's is the first engineering appointment by the Christian Church to serve in that area.

Their new home will be at Coquilhatville, usually called "Coq." "It will be easy to find," Reed said with a wry grin, "It's located at the intersection of the Congo river and the equator."

The Reeds' attention to that part of the world was brought forth through discussions with their pastor, the Rev. Charles E. Mull Jr. of the Mt. Pleasant First Christian Church, who is himself awaiting an appointment to the Congo. The more they heard of the need for workers, particularly with engineering-pilot qualifications, the more convinced the Reeds became that they should serve—so it was a family decision which will probably be the most important of their collective careers.

Mrs. Reed is a registered nurse and while she will not have immediate official duties no doubt she will be a great source of help to the other 16 missionary personnel and their families at "Coq."

Mrs. Reed has already encountered one problem that would dumbfound most housewives. She had to prepare a grocery list for one year, purchase the groceries, get them packed and shipped. She will take on the added duty of baking all the family bread since it is unavailable in the markets. Part of their furniture has been placed in storage and the rest has been shipped; by a strange coincidence one barrel of "household goods" contains model airplanes and parts.

The three younger girls, Jeanette, who celebrated her 7th birthday over the middle of the Atlantic, Julianne, 9, and Jeannine, 10, will receive their schooling by the Calvert System of Home Study which is instructed as a cooperative program by the missionary wives. Joellen, 12, will attend the American Junior High School at Boende, about 310 kilometers from "Coq." The entire family has been studying French with the help of LP records.

During his employment at Daingerfield, Reed was a member of the bowling team, active in the Rifle and Pistol Club (his one disappointment about the future is that he cannot bring firearms into the Congo—he had looked forward to hunting crocodile), DRA Model Airplane Commissioner, and a charter member of the Lone Star Squadron of Civil Air Patrol.

Before going to Daingerfield in 1948 Reed worked at the San Diego Division from October, 1941, to December, 1942.

CONGO MISSIONARY—W. A. Reed and family pose prior to leaving Daingerfield Aug. 9 for new home in Congo. Daughters are Joellen, 12 (in back row with parents), Jeanette, 7, Julianne, 9, and Jeannine, 10.

GD/FW Men to Aid United Fund Campaign as 'Loaned Executives'

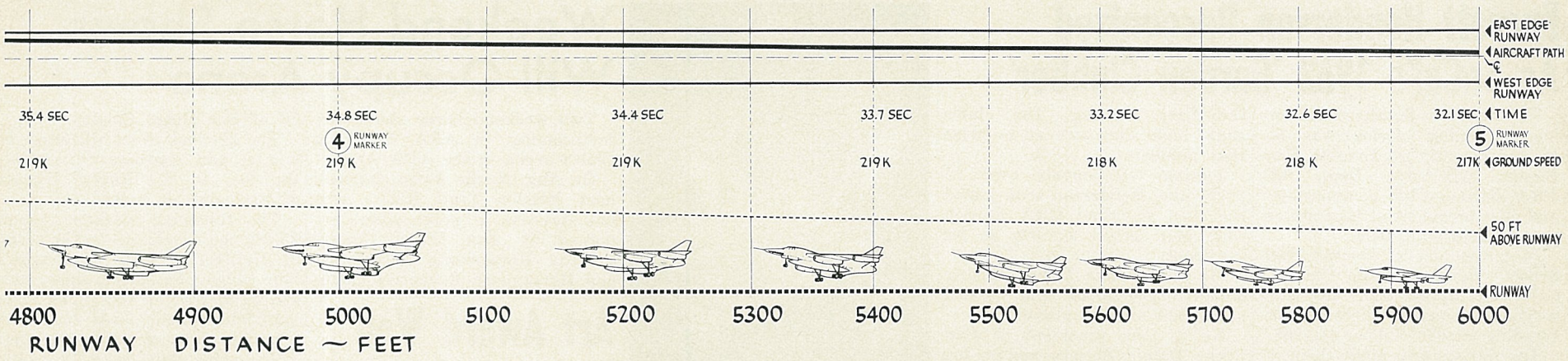
Ten GD/Fort Worth men have been named "loaned executives" for the 1962 United Fund campaign by M. L. Hicks, vice president-legal and procurement.

Hicks is a member of United Fund's board of trustees.

Primarily, loaned executives assist in explaining the mechanics and tools by which larger industries in the community can meet their United Fund objectives.

All loaned executives are slated to attend a 2½-day indoctrination program in Lone Star Gas Co. auditorium on either Aug. 15-17, or Aug. 22-24.

Employees serving are: C. C. Allen, assistant factory manager; E. C. Cauthen, process control supervisor; Fred Holder, assistant chief manufacturing control; Jack Morrow, spares general supervisor; J. I. Pratt, purchasing agent; M. J. Scott, suggestions, material handling and conservation supervisor; N. H. Simpson, manager of reliability; W. D. Strong, administrative assistant general accounting; R. A. Wagner, chief of educational services; and B. B. Shuffler, assistant project engineer.



RECONSTRUCTION—Movie film of takeoff or landing of B-58 is used by illustrators to review plane's attitude at various points. Night takeoffs can also be reconstructed, using lights on aircraft as points of reference. Grid, such as above, is helpful in giving accurate picture of action.

GD/Astro Engineer Off For Montreal

Benoit Lachance, General Dynamics/Astronautics engineer, will travel to Montreal, Canada, late this month for an appearance on CFPN-TV (Channel 10).

Lachance, former Canadair Ltd. employee, will provide French-language narration for a special telecast of the movie "Friendship 7," a film produced by GD/Astro for the U.S. National Aeronautics and Space Administration (NASA).

It describes Lt. Col. John Glenn's orbital flight, from launching via Atlas booster to recovery of the space vehicle. The program is scheduled for Montreal showing about Sept. 1.

'Animated' Movie Films Check B-58 Takeoffs

Illustrators at General Dynamics/Fort Worth are using an "animated cartoon" technique to help unlock the mystery that sometimes surrounds plane problems on takeoff and landing.

The technique involves making sequence drawings of the takeoff or landing from film made by special cameras at either end of the runway at Fort Worth, used by planes from Carswell AFB as well as from GD/FW.

Daylight films, of course, show all action clearly. But at night, only the plane's exterior lights and exhaust from engines appear as tiny specks of light.

On a B-58, for example, dots would represent some of the 11 different lights which the plane carries. One or more of the Hustler's powerful J-79 engines might also show, depending on the film angle.

With help from flight test, service engineering illustrators can identify these individual lights and reconstruct a takeoff.

"By using vellums (copy paper) in registration with the photo, we plot light locations," explained J. H. Herbert, engineering publications supervisor. "Then lines can be drawn between the lights, interconnecting them in their logical sequence."

From these outlines, or "stick airplanes," illustrators can create the plane's attitude at virtually any point during a takeoff or landing.

"We use a small model of the plane, plus Polaroid photos of the model in some of its attitudes, to prove our plots," Herbert said.

Confirmation can also be made by cross-checking film from cameras at either end of the runway. All cameras grind away until the plane is airborne 100 feet.

Movies are taken by both 35 mm and 16 mm cameras housed in 85-foot theodolite towers 1,500 feet to the side and near either end of the runway.

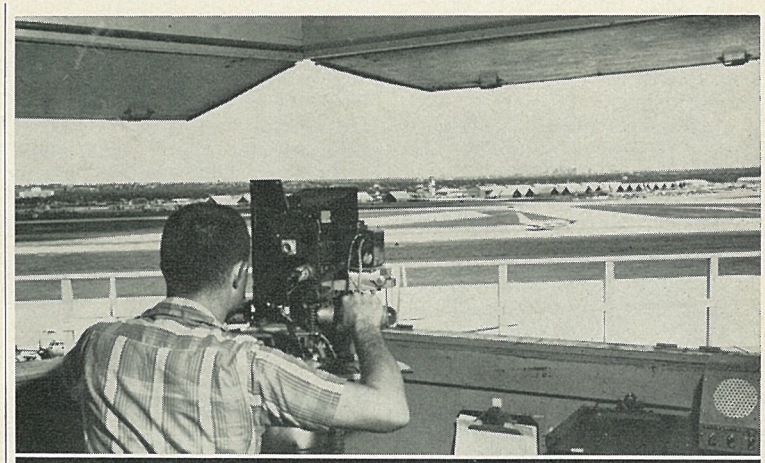
The 35 mm camera clicks away at 10 frames a second through a grid projected on the film by a half-silvered mirror. The film is marked at 50-foot increments vertically, and 100-foot distances on the runway itself. Film from this camera is used mainly to confirm plane position.

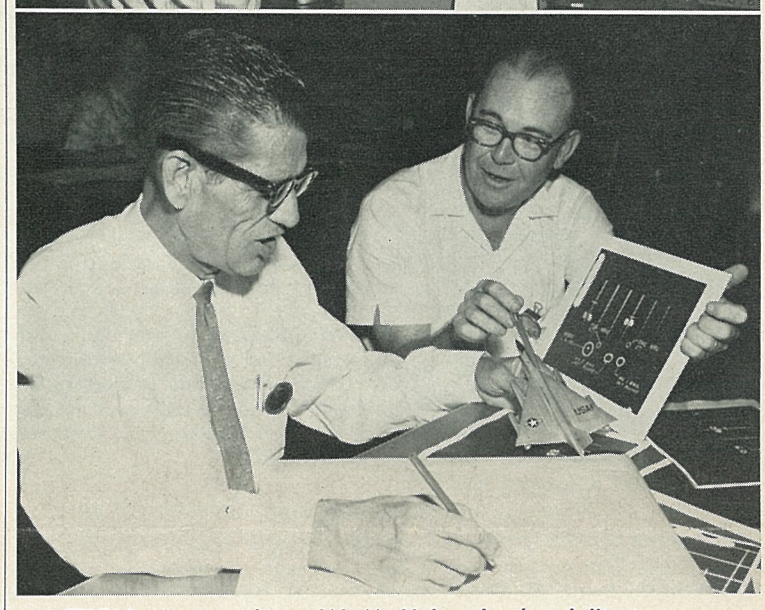
"But the 16 mm camera, which shoots from 24 to 32 frames a second, can be invaluable in slowing down action," said F. E. Carlile, photo lab assistant supervisor assigned to flight test.

"Additionally, the 16 mm movies are in color. This makes it possible to positively identify certain lights on a plane like the B-58, since red, green, and blue lights are used at different points."

Carlile says the job of analyzing film is facilitated by use of a special analyst projector, which permits the operator to speed up or slow down action, or to shuffle it back and forth as necessary.

Round-the-clock operations by Carlile's cameramen now insure complete photographic coverage for Hustler takeoffs and landings.





ACTION—In top photo, W. M. Holcomb, theodolite tower operator, films Hustler takeoff, while below J. H. Herbert, engineering publications supervisor at GD/FW, and C. A. Anderson, editor, reconstruct takeoff pattern from film.

Atomic Reactor New Weapon In War Upon Insect Pests

General Atomic Division of General Dynamics is joining with the University of California at Riverside, Calif., in the use of an atomic reactor as a weapon against insect pests which take a toll of stored grain and other commodities.

The University's research project is to establish new standards for fumigating grains, provide maximum protection and extend storage life while holding residues within tolerance levels set by the U. S. Food and Drug Administration.

To this end, an ultra-sensitive technique of nuclear science—neutron activation analysis — is used to identify and measure pesticide residues in quantities as small as one part per million. Fumigated samples of wheat and flour are being irradiated, under neutron bombardment, in a TRIGA research reactor at General Atomic laboratories.

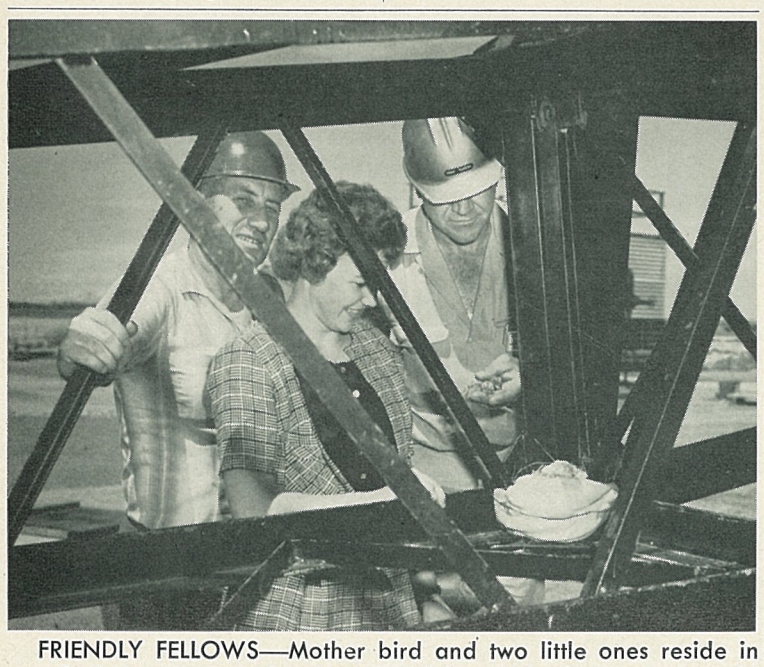
By contrast to chemical methods previously used in such research, neutron activation analysis is simpler, faster, more precise, nondestructive and relatively inexpensive.

Working with the University scientists is Dr. Vincent P. Guinn, technical director of General Atomic's neutron activation analysis program and one of the originators of the use of this technique in determining bromine-containing pesticide residues. In addition to the studies for the University of California, General Atomic is analyzing other foodstuffs, including milk products, citrus fruits, vegetable oils and spices for chlorine and bromine residues and for "traces" of sodium, potassium, aluminum, vanadium, manganese, copper, and tin.

According to Dr. David L. Lindgren, University of California entomologist, much of the food produced in the United States is fumigated with brominated or chlorinated organic compounds, including methyl bromide which is used as an insecticide for grains, flour, bran, and other grain derivatives.

Extremely toxic to most insects which feed on grains, methyl bromide, when absorbed by grain, undergoes chemical decomposition and becomes an inorganic bromide. Some of these bromine residues find their way into the processed foodstuffs. Government tolerance limits for residues of methyl bromide in raw agricultural commodities vary from 5 to 240 parts per million, depending on the crop.

The University of California-General Atomic studies are directed at determining factors that influence the fumigating process and the amount of residues, such as temperature conditions, aeration and moisture content.



FRIENDLY FELLOWS—Mother bird and two little ones reside in nest built in crane at Complex 5, Walker AFB. Crane was moved and thoughtful employees transferred nest back to Complex 5. Mother had no objections to humans handling babies, as trio of Astro folk demonstrate. Left to right: Dannie Williams, Carol Chapman, Doug Maness.

Lawson Installed As Area President

L. G. Lawson of GD/Convair was installed as president of the San Diego Area Council of National Management Association Aug. 4 in ceremonies at Catamaran Hotel.

Other officers for the 1962-1963 term are F. Schoelkopf of Ryan Electronics, vice president; W. E. Magnuson of GD/Astronautics, treasurer; A. E. Froehlich, Ryan Aerospace, secretary.

Lawson said that the council will continue the policy of mutual help and exchange of ideas for the benefit of all NMA members in the San Diego Area.

Save Material—Don't Throw Your Job Away!

Sky Telephone Service Tried Out in 990,880

Passengers aboard Convair airliners flying over American Airlines and Trans World Airlines routes are now making telephone calls in flight for the first time in aircraft history.

American Airlines inaugurated a new skyphone service on a 990 jetliner July 25 with a second 990 getting a similar public phone later the same week. TWA installed a skyphone in an 880 July 28.

Both lines will be evaluating the equipment on the Convair jet transports over the next several months. Tests, if successful, could lead to installation of telephones on all of their jet planes.

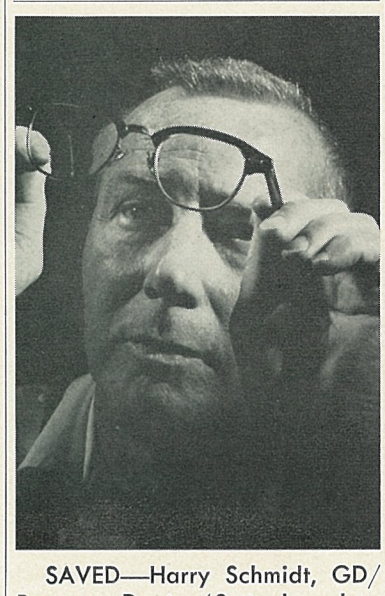
American is confining its skyphone service for the present to 990 flights within the New York-Chicago-St. Louis triangle because of the location of American Telephone and Telegraph ground stations that pick up the radio signal from aloft. Calls are relayed from the ground station along regular long distance lines.

TWA's air-to-ground phone service is being used on an experimental basis on 880 flights between Chicago, St. Louis, and the East Coast.

Additional stations across the western half of the country will be established by the Bell System in another year, with the air-ground network of ground stations increased to 72 by 1965, according to the TWA company publication.

There are no present plans providing for calls to the planes in-flight from ground telephones.

Passengers are able to charge calls to home or office telephone numbers, use a telephone company credit card or call collect.



SAVED—Harry Schmidt, GD/Pomona Dept. 42 tool maker, examines safety glasses that saved him from injury when tip of saw blade struck lens.

Outstanding Safety Record Achieved

Convair-Liners have piled up almost 17½ million flight hours during their 14 years of service with commercial carriers and the military services.

Since 1948, the 490 aircraft in commercial service have accumulated around 10,334,000 hours in the air. The military, with 509 aircraft since 1950, has totaled 7,079,565 flight hours with Convair-Liner type planes.

And the overall safety record for the entire 14 years is only .6 major accidents per 100,000 flying hours!

Everett Henderson Recognized As SoCal's 1962 'Garden Clubber'

Top honor in Southern California gardening circles was bestowed recently on Everett Henderson, GD/Astro Dept. 602, ARA Garden Club commissioner and past president of its counterpart CRA organization.

In ceremonies at Hoover High School, the San Diego Chapter, California Association of Nurserymen, named Henderson "outstanding garden clubber of 1962."

The nurserymen made their selection from among eight nominated by 40 area garden clubs with total membership of over 2,500. The award was based on contributions to the garden club movement during the last three years.

A women's award went to former GD/Convair employee Jean (Mrs. Joseph J.) Kenneally.

Henderson's nomination came from ARA Garden Club which he founded in late 1961. Three months' extensive promotional work before the club got under way netted over 100 persons at the first meeting. The club's ranks have since swelled to twice that number.

TOP CLUBMAN—Everett Henderson, ARA Garden Club commissioner and formerly active in GD/Convair club, displays trophy presented to him by local California Association of Nurserymen chapter as "outstanding garden clubber of 1962."

Joining GD/Convair over 15 years ago, Henderson soon joined the then fledgling CRA Garden Club and served a term as its president.

"In those days I was raising dahlias," Henderson said. "I had about 800 hills of plants."

He is past president of San Diego Dahlia Society and in his "dahlia days," frequently held open house at his Pacific Beach home to display his plants to fellow employees.

A temporary disability forced Henderson to abandon dahlia culture and he switched to his present specialty: orchids. In May he held another floral open house, exhibiting 2,500 orchid blooms (up to 100 on a plant) to visiting GD/Convair and Astro employees.

He is currently president of the San Diego Orchid Society, and remains an accredited judge for the American Dahlia Society.

Bowling Director For Wives Chosen

Ann Ragusa, wife of Joe Ragusa of Dept. 170, has been named bowling director for GD/Astro Wives Auxiliary.

This week Ann announced plans for a winter league to roll each Monday (9:30) morning at Clairemont Bowl beginning Sept. 17.

No established handicap is necessary and beginners are welcome.

Available to wives is a free nursery for pre-school children.

Those interested in becoming a regular team member or a substitute are invited to contact Ann at BR 3-6264.

August, September Salvage Dates Set

Salvage yards are open to General Dynamics employees on the following alternating Saturday schedule:

GD/Convair—Aug. 18, Sept. 1
GD/Astro—Aug. 25, Sept. 8.

Sales hours are 8 a.m. until noon at both GD/Convair Plant 1 and GD/Astro Kearny Mesa site.

Programmed Instruction Chapter Forms With Dynamics Men in Important Roles

General Dynamics people interested in any phase of programmed instruction are invited to attend the Aug. 30 meeting of the newly-formed San Diego chapter of the National Society for Programmed Instruction.

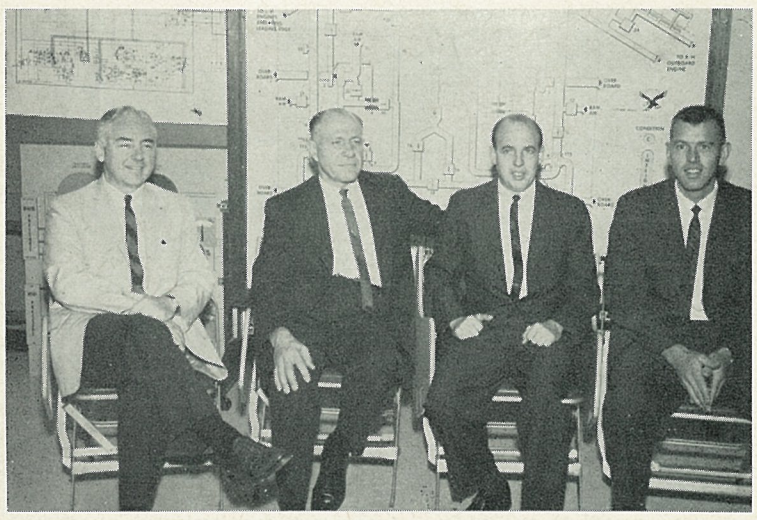
Two guest speakers will be on the program during the evening's session in Convair executive dining room, Pacific Hwy., said J. D. Meacham (Dept. 16-1), president. Meeting starts at 7:30 p.m.

The San Diego group, composed of training and publications personnel in GD/Convair, Astro, and Electronics divisions, San Diego educators, military and commercial agencies, was formed in June. It is the only chartered chapter in the United States at the present time.

Forty-one members, including ten new ones, saw a demonstration of various types of teaching machines and aids at the July 26 meeting; as well as a comprehensive display of sample programs, books and brochures on programmed instruction.

John Yewusiak, consultant for the Center for Programmed Instruction, spoke on activities of newly-organized programmed learning institutes, and a film, "Learning and Behavior," dealt with methods of teaching pigeons.

For information on the Aug. 30 meeting call C. M. Keys of GD/Convair, secretary of the chapter, at Plant 1, exts. 2249 or 2782.



ORGANIZERS—First slate of officers, all of GD/Convair, directing SD chapter of National Society for Programmed Instruction during formation stages are, from left, P. H. Selby, vice president; M. M. Monroe, treasurer; C. M. Keys, secretary; J. D. Meacham, president.

KEYMAN—Joe Balvocius, left, of Astro's Walker AFB office, recently received Keyman Award, top Junior Chamber of Commerce honor, for community work at Roswell, N.M. Presenting is Bob Hazelwood, state vice president. Honor recognized outstanding effort by Balvocius in Jaycee activities since 1960.

Singles Club Slates Dance

ARA Singles Club has scheduled two events for all single adult GD/Astro employees.

First is a dance to be held in ARA Clubhouse from 9 p.m. to midnight Aug. 17. Admission is 50 cents upon presentation of Astro identification card.

Aug. 19 the group will hold a "do-it-yourself" picnic at the main picnic shelter, ARA Area. This event is free with participants supplying their own food.

ARA Snack Bar will be open for purchase of sandwiches and other refreshments, and softball, volleyball and dancing are on the entertainment agenda. Hours are 5 to 10:30 p.m.

ARA Nine at Walker Enters Championship

WALKER AFB — An ARA-sponsored GD/Astro softball team here has copped two victories in three games while competing in the Roswell City League.

Late last month the Astro team traveled to Carlsbad to take part in district play leading to New Mexico State championships. Early this month they were to engage in Roswell's annual city championship tournament.

Joe Degregorio is manager with Alexander Manzano as coach. Team members include Darold Wainwright, Phillip Gannon, Allan Leach, Dale Grose, James Roller, John Stanley, Tom Neason, Carl McCargo, Stan Howey, Fred Baker, Doug Benson, Paul Casey, Carl Fulpon, Jim Hammon and John Stansbury.

Hair Styles Topic For Wives Meeting

LINCOLN AFB—Legionnaire Club, Lincoln, was the gathering point for approximately 100 Lincoln Atlas Wives Club members for their July meeting.

Discussions centered around hair styles with one of Lincoln's foremost stylists conducting demonstrations and answering questions. His models included club members Mmes. Eugene Gilmore, Bill Boone, James Cusack and Vance Walsh.

Hostesses were Mmes. Gary Jones, Kenneth Kleager, Lee Silvernale, and Gordon Tume.

ARA Teen-Age Club Will Dance Aug. 18

ARA Teen-Age Club will hold a dance from 7:30 to 11 p.m. Aug. 18 in ARA Clubhouse, with the "Leisures" band providing music.

Each member may bring one guest, according to Commissioner John Hess. Admission is 25 cents per person.

The group conducts dances on first and third Saturday evenings of each month. Club membership applications are available to parents at all employee services outlets.

Weekend Horse Shows Will Occupy Arena

Two weekend horse shows are forthcoming in ARA Riding Club's arena in the ARA Area.

On Aug. 19 the Astro club will host Mission Trail Riders who will present a point show endorsed by San Diego County Junior Horsemen's Association and Horsemen's Executive Council of San Diego County.

The 20-class event will open at 9 a.m. and continue throughout the day. D. M. "Rusty" Hunter of Escondido is judge.

The following weekend (Aug. 25-26) the arena will be the scene of California State Horsemen's blue ribbon elimination show, consisting of written and riding tests qualifying participants for State championships at Santa Barbara.

The show coincides with "ARA on Parade," Aug. 26. Western classes will be judged on Saturday, and saddle classes Sunday.

Tests will be conducted by Tom Mack, California Horsemen's Association president, assisted by Regional President Leo Reed. C. Ward Jones is show manager.

Spectators are welcome at both shows. There is no admission charge.

Art Award Won By Astro Son

Ronald Lutz, 17, son of GD/Astronautics engineer James C. Lutz, Dept. 531-2, added to a string of art awards by submitting the winning design for San Diego's 1963 Rose Parade float.

He has also won a Bank of America contest, and last year was a finalist in GD/Astro's "Right and Ready" poster design contest for children of employees.

For submitting the winning float design on a theme of "Memorable Moments," Ronald will receive two tickets to the Pasadena Rose Parade and Rose Bowl football game New Year's Day.

His design featured signing of the Declaration of Independence.

A June graduate of La Jolla High School, Ronald will attend San Diego State College this fall.

Astro Notes Signed For Musical Show

Astro Notes, ARA choral group, will appear in "Pardon My Smoke," a musical comedy to be produced by Musical Theater Guild, a little theater group, Aug. 22 through 25 at Roosevelt High School auditorium.

The Astro organization will perform five numbers during three appearances in the show. Director Jim Rogers will lead them in "Bye Bye Blackbird," "No Business Like Show Business," "Grand Old Flag," "Give Me Your Tired," and "This Is My Country."

"Pardon My Smoke" is planned as a benefit for blind children. Donation for all performances is $1. Ticket information is available by calling AT-1-4723 or AT-3-3389.

GD/Astro Lensmen Win Display Honors

Five General Dynamics/Astronautics photographers were honored at the recent Western States Photographic Print Exhibit held in San Francisco.

Top winner was Keith Adams who submitted an entry judged "best industrial print in show." He won a bronze medal for a second entry.

Photos by Cameramen Jack Stevens, Bob Weissinger, Frank Tercey and Walt Gault, all of GD/Astro still photography (Dept. 125), were also selected for display.

Tercey's print was chosen for bronze medal award, while Gault "hung" four prints, and Stevens and Weissinger, two prints each.

Fish Tackle Offered At Bargain Prices

Special quantity purchase of Langley fishing tackle by ARA Fishing Club will enable Astro employees to acquire top quality equipment at prices up to 75 per cent below retail!

Available are both fresh and salt water reels, and fresh water rods.

The equipment was first made available to Fishing Club members at a recent meeting. Other employees may purchase it beginning tomorrow (Aug. 16).

Orders may be placed at employee services office (Bldg. 8) during regular sales hours. Catalog and price list is available, and full payment will be required with each order.

Employees placing orders may pick up the equipment at ARA Clubhouse between 4 and 5:30 p.m., Tuesday, Aug. 21.

Few Season Charger Tickets Remaining

Season tickets for San Diego Charger home football games are still available through Astronautics Recreation Association. About half of those originally offered have been sold.

The seats are located near the 10-yard line in the upper deck of Section 6 on the shady (west) side of Balboa Stadium.

Price per seat is $35 for seven league games only or $50 for all 10 home games. They may be obtained only from employee services, Bldg. 8, at the main plant.

Party Celebrates Successful DPL

WALKER AFB — Successful above-ground dual propellant loading (DPL) at Launch Complex 9 here was the occasion for a party hosted by W. G. Hawkins, launch group chief, for complex personnel.

The social event was held at Walker AFB officers club Aug. 1.

Filling key slots in the milestone DPL were N. F. Peters, test conductor, and A. V. Martinez, complex supervisor.

TOP AWARD—GD/Astro Photographer Keith Adams shows Manager E. H. Boldrick trophy for best industrial print in show at recent Western States Print Exhibit in San Francisco, while Cameramen Jack Stevens, Bob Weissinger and Frank Tercey, whose pictures were also selected for exhibit, look on. Not shown is Walt Gault, who hung four prints in show.

GD/Astro's Recreation Area Product of Volunteer Work

Over 85 per cent of the work in developing the General Dynamics/Astronautics Recreation Area was performed by volunteers.

The Area and its many facilities are being featured this month (Aug. 26) at "ARA on Parade."

However, thousands of Astro folk need no special introduction to the area. They are among volunteers who have devoted more than 37,000 manhours to the project in just over four years. (One individual, working a 40-hour week, would have to labor 19 years to reach such a total.)

Recognized by ARA to date have been 67 individuals who have worked more than 100 hours; 148 who have worked more than 60 hours; and 631 who passed the 20-hour mark.

During development, ARA contracted for mechanical, plumbing, electrical and plastering, plus some finishing. Volunteers did the rest.

Work began at about the time Astronautics employees began to move into the Kearny Mesa facility. One of the first chores was landscaping, in which volunteers planted 300 trees and grass throughout most of the area.

From the start departmental groups have been key contributors. The area was laid out in grids of approximately one acre. One or more departments took over the development of the grid, including all facilities to be added. Major buildings were finished by individuals or groups of departments or functions. All ARA activities also pitched in for specific finishing tasks near the end of the current development phase.

The 25-acre plot is divided into 10 acres of outdoor or picnic-type facilities. The remainder contains other facilities.

In the outdoor area are two large (45′ x 75′) group picnic shelters, 20 smaller (10′ x 20′) shelters, one large barbecue pit and 25 smaller ones. There are shuffleboard, horseshoe and volleyball courts. Children's playground equipment includes all the usual swings, slides and rides, plus an Air Force jet fighter plane restored and mounted as a plaything.

The present 14,750 square-foot ARA Clubhouse grew from two former buildings housing offices during construction of the main plant. ARA positioned, renovated and finished these, then added a center section.

The Clubhouse can now handle up to nine meetings of from 20 to 600 persons each at once.

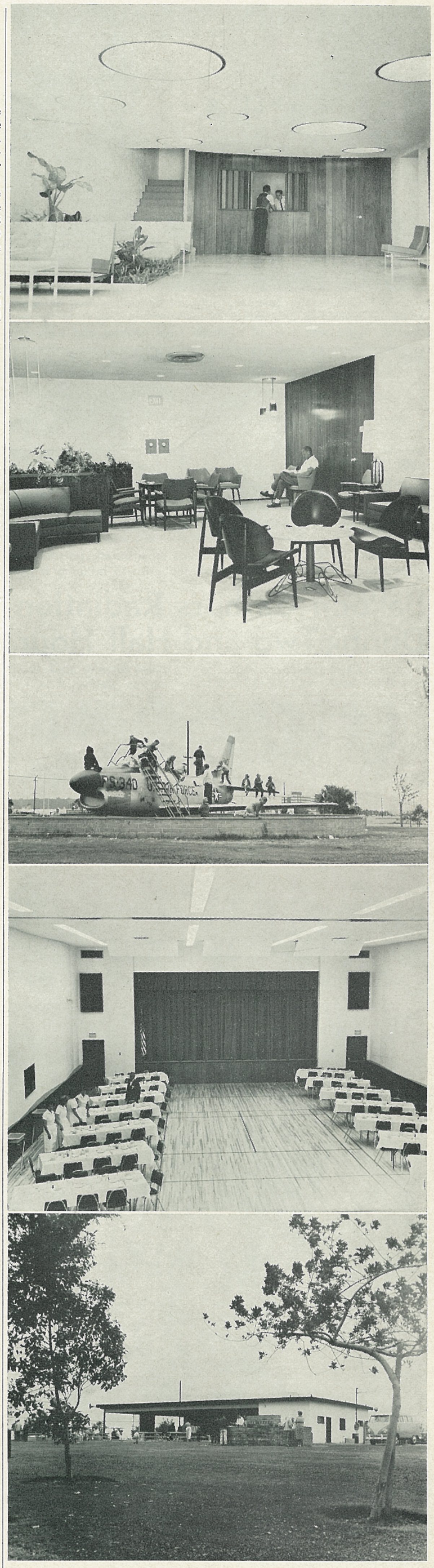
It also contains a complete little theater and drama workshop, amateur radio center, rockhound center, hi fi music studio, physical culture room, locker rooms, rest rooms, offices, a kitchen, color TV lounge, reception center, combination workshop and general meeting rooms.

Other permanent facilities include a Little League baseball park and the only privately-owned lighted softball park in San Diego County. There is a riding arena and corrals, two tennis courts, a unique "Tiki" waterfall and an astronomy observatory.

In the planning stages or under construction are tracks for go-cart and midget auto racing, a model airplane flying ring, a western town, space-age playground, physical culture center, arts and crafts workshop and possibly in the future a gymnasium and swimming pool.

Present plans call for continued development through the use of volunteer labor, just as long as employees continue to show an interest.

Perhaps employees and their families seeing the Area for the first time during "ARA on Parade" will want to add their efforts to that already furnished or planned for the future.



READY FOR USE—Visitors to ARA on Parade, Aug. 26, will be introduced to numerous facilities available for employee use in ARA Clubhouse and Recreation Area. Top to bottom are Clubhouse lobby, upstairs TV lounge, F-86 jet modified for children's play, view of main auditorium, and one of two picnic shelters for use of large groups. Elaborate facilities for dramatic productions are included in auditorium appointments, with a full battery of lights and sound system controlled from a master console off-stage.

Sports & Recreation

Mid-September to See Winter Bowling Start

ARA winter bowling at six area lanes with league play of all types starting in mid-September has been announced by ARA Commissioner Jack Boyle.

With the exception of swing shift leagues which bowl at 1:45 a.m. Saturdays, all play starts at 6:30 p.m.

Boyle stated several special features will be introduced in ARA bowling this year. If interest warrants, a mother-daughter, father-son program will be set up at Frontier Lanes Saturday mornings.

The title of "Mr. or Mrs. ARA Bowler of the Year" with appropriate trophy will go to bowlers rolling top handicap series throughout the ARA program.

Finally, if a complete department league is formed a special trophy will be awarded.

Directors for each bowling facility have been named, and Astro bowlers are encouraged to approach them for assistance or information. Each will wear a distinctive blue shirt with red ARA insigne.

Assigned to Clairemont Bowl are Directors Tony Minnitti, Ray Altmeyer, Larry Atwell, Lee Kite (swing shift), and George Peck (junior program). At Escondido, director is Larry Hartshorn; Chuck Quinton at Frontier; Clark Saunders at Parkway; and Bob Crafton at Poway.

Bowling questions will be answered by Gena, ARA Headquarters, ext. 1111, who will accept applications mailed to her at Zone 130-50. Applications are available at employee services outlets, bowling houses, and from Boyle and ARA bowling directors.

ARA Will Sponsor Top Stars In Show For GD/Astro Folk

Sponsorship of an all-professional cast presenting "The Tender Trap" with Eddie Bracken as star has been arranged by Astronautics Recreation Association which will offer tickets to employees at reduced rates.

Curtain time will be 7:30 p.m., Sunday, Sept. 9, at Russ Auditorium.

Tickets will be $1.25 and 75 cents each, dependent upon location. All seats will be reserved. Tickets go on sale Monday (Aug. 20) at all employee services outlets on a first-come, first-served basis.

Written by Max Shulman and Paul Smith, "The Tender Trap" is a romantic comedy first presented on Broadway in 1954-55. It was later made into a movie starring Frank Sinatra, Debbie Reynolds, David Wayne and Celeste Holm.

Bracken will play the role of Charley Reader, a New Yorker who goes to great trouble evading matrimonial traps set by desireable young ladies. He will be supported by an all-professional cast. Featured players will be announced later.

ARA Calendar

(GD/Astronautics Recreation Association has some 40 activities in operation for employees. For information call ARA Headquarters, ext. 1111.)

ASTRO MOTORS — Meeting 7:30 p.m., Aug. 15, ARA Clubhouse.

BOWLING — Winter leagues (all types) start in mid-September, at six lanes. Applications for individuals, teams, or departmental leagues available at employees services outlets.

GOLF — ARA Sweepstakes at Fletcher Hills Sept. 1 and 2. Starting times from ext. 1111, Aug. 20-29.

HI-FI/MUSIC — Meeting 7:30 p.m., Aug 22, ARA Clubhouse. W. R. Brown will discuss amplifiers.

ICE SKATING — Skating at Iceland, 6055 Lake Murray Blvd., La Mesa, tomorrow (Aug. 16), 6:30 p.m. Details from Bud Davies, ext. 4042.

MOVIES — Meeting 7:30 p.m., Aug. 20, ARA Clubhouse.

RIDING—Horse shows in ARA Arena Aug. 19, 25, 26. Free.

SINGLES — Dance Aug. 17 ARA Clubhouse, 9 p.m. Admission 50c plus ID card. Patio Picnic at main picnic shelter, 5-10:30 p.m., Aug. 19. Free. Bring own food.

TEEN-AGERS — Dance 7:30 p.m., Aug. 18, ARA Clubhouse. One guest per member. Admission 25c.

Baseball Club Leads League

ARA's varsity baseball team stretched its record to a perfect 7-0 with a recent 11-5 win over New Linen Supply in AAA City League play.

Pitchers Hilbert Murillo, Bruce McIntyre and Bill Murphy were on the mound in this contest, while hitting honors went to Mike Smith who slammed a home run in the 4th inning.

Dave Walden and Dick Schaeffer accounted for seven of 16 hits yielded to Astro, driving in seven runs between them.

Astro now leads the league, with New Linen Supply the nearest contender with a 6-1 record.

Also serving the team on the mound are Astro's Bob LaSoya, R. Wells, and Ron Dixon. Other team members include Charles Johnson, Marty Martinez, Garfield Winters, Charles Vanderhoff, Gary Ewing, Jerry Goins and Norm Cantrell.

Hi-Fi Club to Hear About Amplifiers

Basic discussion of amplifiers, their design and function in high fidelity systems will be the topic at ARA Hi-Fi/Music Club's meeting 7:30 p.m., Aug. 22 in ARA Clubhouse.

Speaker will be W. Ray Brown, GD/Astro engineer, who will deal with such questions as the power and quality requirements for amplifiers in home listening systems.

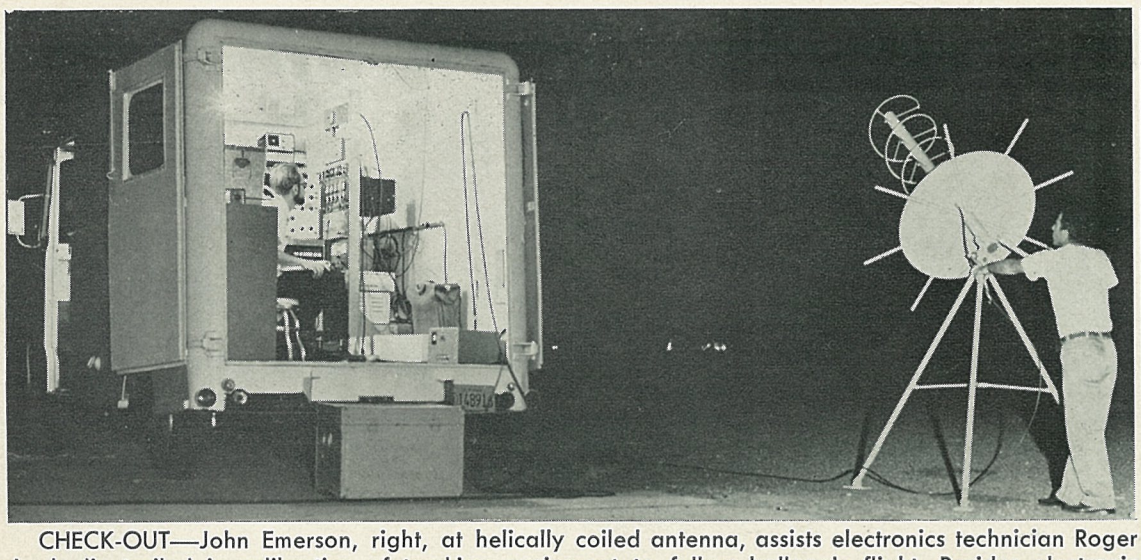
The meeting will be held in the club's facility in ARA Clubhouse where construction continues with installation of acoustical baffles along the walls. Work is also under way on an elaborate control console to be located just off the main room.

Lens Club Cancels Summer Affairs

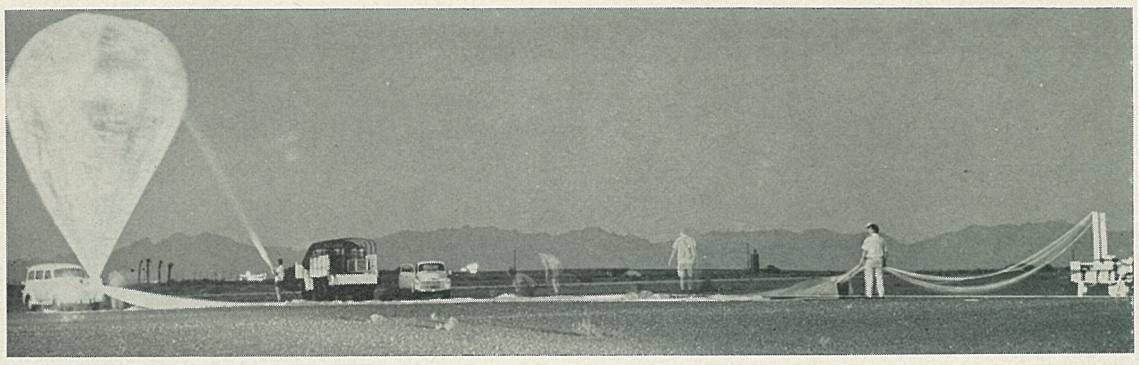
Astro Lens, ARA camera club, is "going on vacation."

The group's quarterly contest slated Aug. 19, and a meeting scheduled for Sept. 2 have been cancelled.

Next Astro Lens meeting will be held Sept. 16 at Photo Arts Bldg., Balboa Park.



CHECK-OUT—John Emerson, right, at helically coiled antenna, assists electronics technician Roger Jerde (in trailer) in calibration of tracking equipment to follow balloon's flight. Besides electronic devices, flight was tracked optically from ground and from airplane.



MAKING READY—In pre-dawn hours crew unrolls polyethylene balloon from reel on truck (right foreground), laying out 140-foot shroud prior to inflating it with helium.

Balloon Gathers Radiation Data During Two and Half Hour Flight

General Dynamics/Astronautics scientists have again utilized man's oldest form of air travel—a balloon—to gather data that may prove important to rocket-powered space flights of the future.

A select crew from Astronautics' space physics organization launched the 140-foot-high polyethylene bag filled with helium Aug. 2 from an abandoned air strip near Dateland, Ariz. Lift off was at 5:34 a.m.

For about two and one-half hours the balloon soared upward, reaching a maximum altitude approximately 24 miles above the earth. Winds of about 57 miles per hour carried it south and west. At a given signal the balloon's instrumented payload was detached from the balloon and floated to earth by parachute. It was picked up a short distance from Highway 80 near the Imperial County Airport, El Centro.

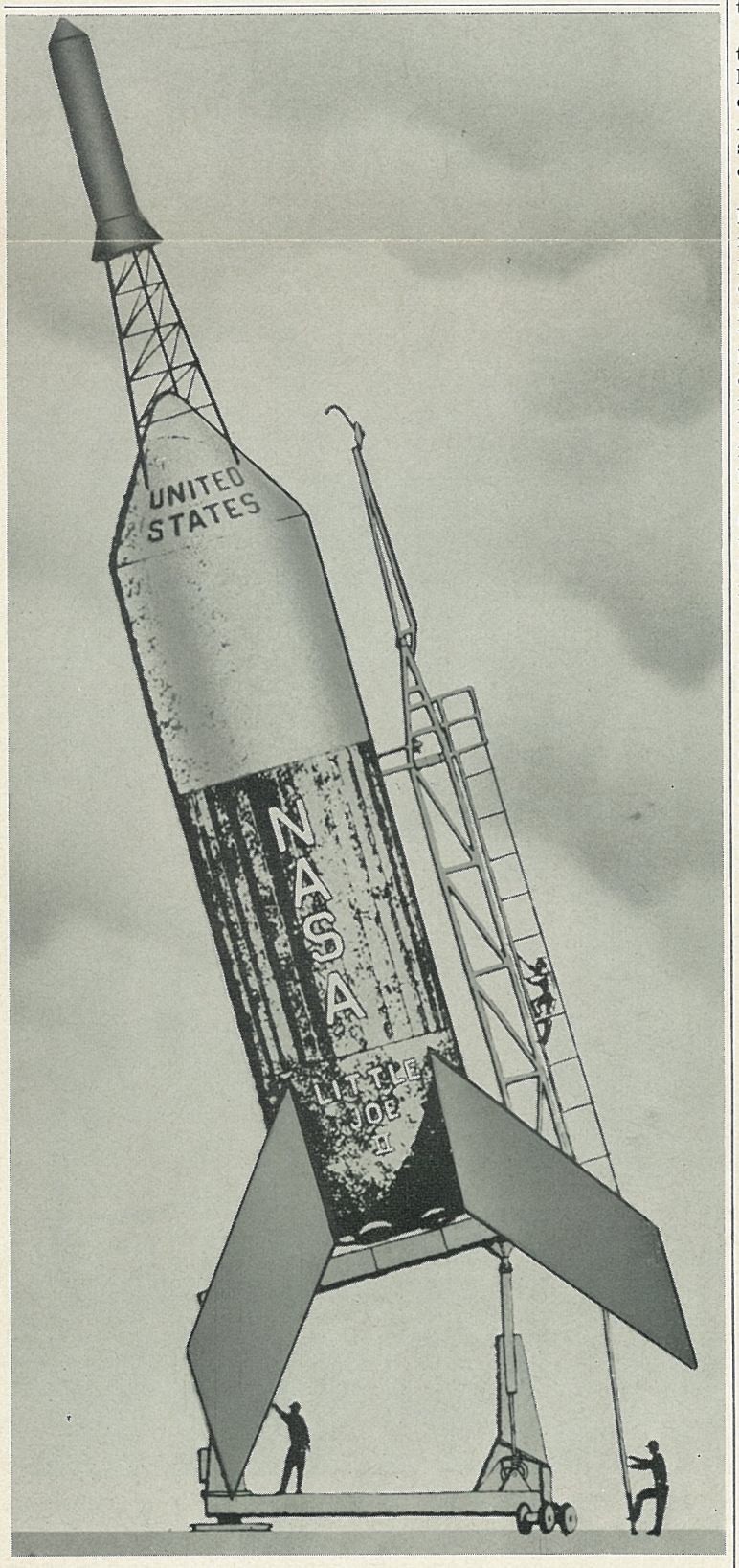
During the climb and descent, an instrument known as a scintillation counter measured radiation intensity and flashed the findings back to earth.

Both a ground station at Dateland and an aerial station carried aloft by an accompanying aircraft recorded data.

Balloon flights are nothing new to this crew. They have conducted about 10 each year in special experiments. Most are part of studies of X-ray radiation in space with earlier flights collecting data on X-rays produced by the sun.

The Aug. 2 flight was different in that it was made to gather data on background X-rays, or those present from sources other than the sun.

Dr. James I. Vette was in charge of the crew conducting the flight.



BIG BOOSTER—Above is first artist's illustration of Little Joe II, rocket-powered launch vehicle, under construction at GD/Convair for NASA to boost Apollo space craft on unmanned, suborbital test flights. GD/Convair will build barrel sections (shaded), fins and launch stand. Complete unit will be 103 feet tall.

Club Committee Heads Chosen

Twenty-eight GD/Fort Worth Management Club committee chairman for 1962-63 have been named by President Miles Rogers. They are:

A. S. Witchell, research; C. T. York, visitation and flowers; J. T. Jenkins, management development; E. W. Reynolds, special events; R. T. Yaggi, junior achievement.

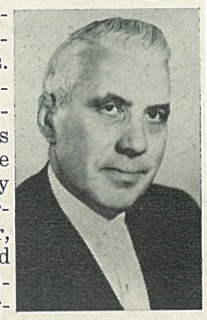
R. L. Sullivan, sergeant-at-arms; T. R. Boley, budget and audit; L. L. Jarl, retired members; S. E. Keith, B-36 monument; E. L. Clerc, awards; M. G. Gross, public relations; E. D. Mathis, Fix-a-Toy; J. C. Herr, program; J. D. Ancy, speakers bureau and Toastmasters.

B. Q. Greene, property guardian; J. M. Lankford, search and rescue; E. J. Polasek, Boy Scouts adviser; L. B. Messersmith, historian; J. J. Kenna, ways and means; W. R. Ellis, tours; G. E. Symm, bowling; D. W. James, ticket distribution; Ken Hargrove, booster and membership; E. E. James, indoctrination; B. E. Justice, Camp Leonard; Al Freedman, physical fitness; P. H. Billman, management conference; G. S. Dean, Lena Pope Home; and E. M. Kerlee, invocation.

John Dundas to Direct Sales Effort Abroad

John A. Dundas has been appointed a vice president of General Dynamics Corporation, Roger Lewis, president, announced last week. He will assume his new duties today (Aug. 15) at corporate headquarters in New York City.

Dundas' primary responsibility will be to coordinate and expand the Corporation's international activities. General Dynamics has 12 operating units which produce a wide variety of space, aircraft, nuclear, electronic and undersea systems. In recognition of the growing importance of overseas business to the United States economy, Lewis said, General Dynamics intends to intensify its efforts on international sales.



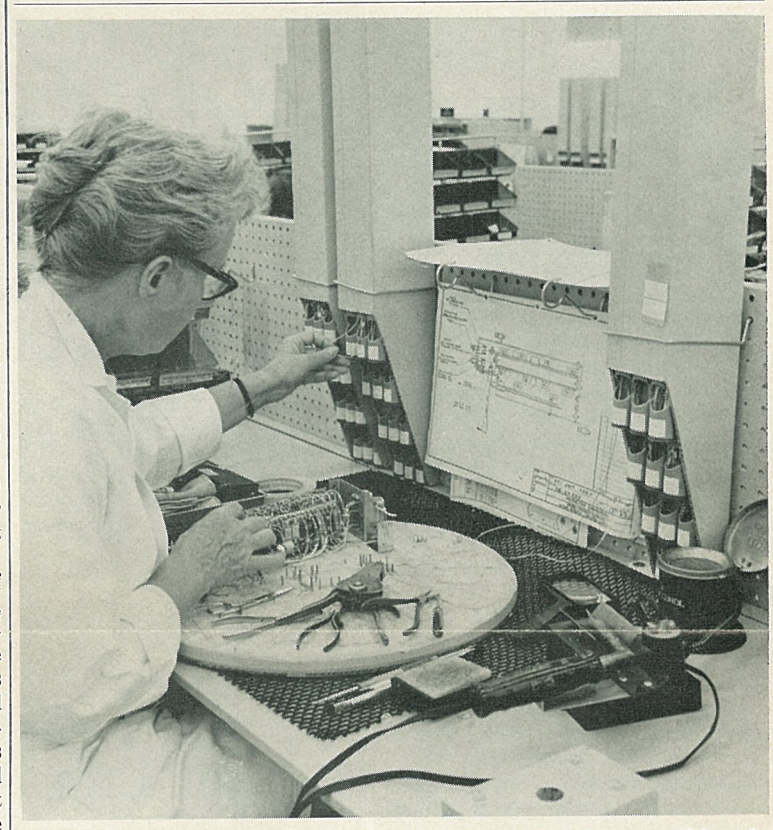
John Dundas

Dundas has been executive vice president and a director of Douglas Aircraft Corporation, Santa Monica, Calif.

Dundas has been with Douglas since 1944 when he became a member of its legal staff. Named general counsel in 1952, he was appointed vice president in charge of administration in 1957. Later in the same year, he was named executive vice president of the company and elected to the board of directors.

A native of Portland, Oregon, Dundas was born in August, 1905. He received his B.A. degree in 1927 and an LL.B. in 1930, both from the University of Southern California.

Admitted to the California bar in 1930, Dundas practiced law in Los Angeles for the next nine years. From 1939 to 1944 he served in the Los Angeles city attorney's office and as regional enforcement executive on the Pacific Coast for the Office of Price Administration.



EASY PULLING—Ruth Mary Holden, electronic assembler in GD/Electronics at San Diego, finds it simple to select correct wire from new-type "pipe organ" dispenser.

'Do-It-Yourself' Project at GD/E Nets Dollar-Saving Wire Holder

A new type container for wire storage and handling in electronic assembling has come out of a "do-it-yourself" project in General Dynamics/Electronics production engineering at San Diego.

George Patrick, supervisor of methods, process specification, and production plans, came up with what is aptly known as the "pipe organ" wire holder after searching the field for a device to hold the many different lengths of wires used at assembly work stations.

Main objective was to design a holder that would store the largest number of wires in the least space; one that would allow an assembler to select a wire at a time without an entire bundle tumbling down.

Now, 60 work stations in the GD/Electronics assembly area at Plant 1 are equipped with 220 upright cardboard cartons. Glassine-lined mailing tubes within the cartons contain properly-cut wires, labeled in sequence, for each assembly. Assemblers can draw individual wires out of mouths cut in the lower end of the tubes.

Containers are secured by wire clips when upright, taken down and laid flat for refilling.

Vern Johnson, GD/E packaging specialist, helped work out details of the simple but effective containers, which, made in GD/E fabrication, cost less than $4 apiece. A special tool of aluminum cuts the wire removal slots on a metal saw, six at a time.

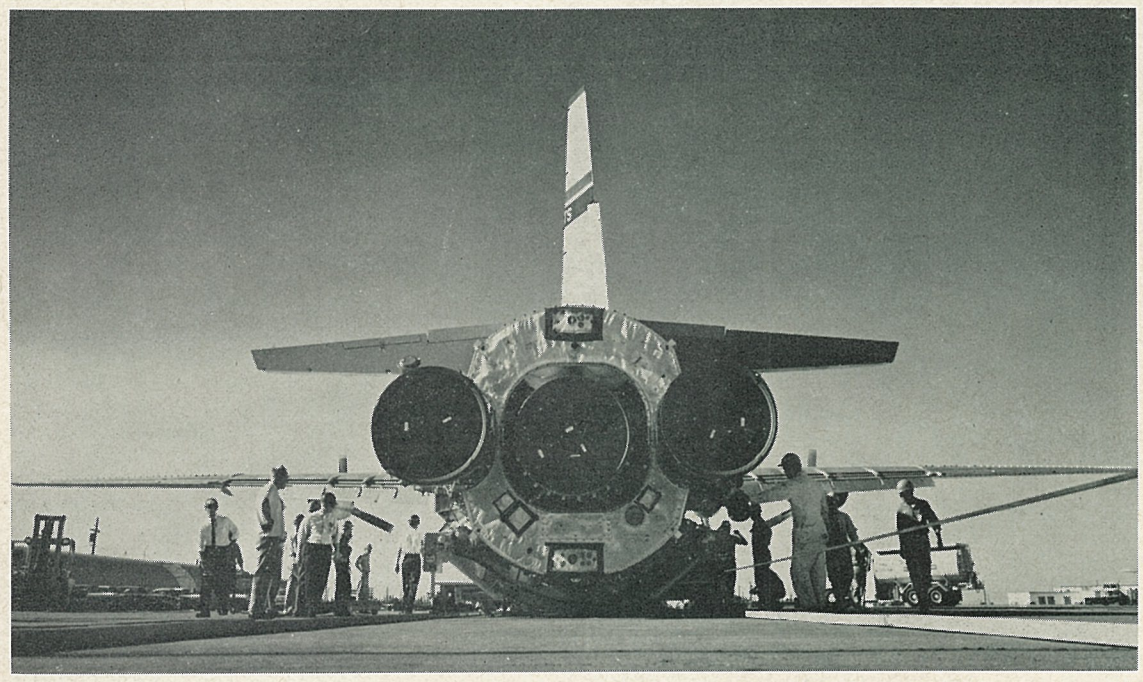
"Where? The Belgian Congo? . . . Well, keep after him!"

GENERAL DYNAMICS

NEWS

ASTRONAUTICS EDITION

Vol. 15, No. 18 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, August 29, 1962

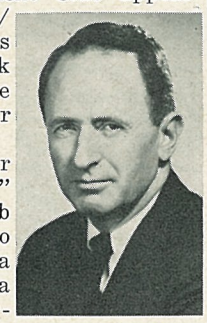


WINGED ATLAS? — Atlas missile unloading from C-133 at Walker AFB, Roswell, N.M., merges with aircraft's wings and tail until they seem a part of it. Missile is destined for silo installation.

Lewis to Speak To Club Sept. 12

Roger Lewis, president and chairman of General Dynamics Corporation, will address the General Dynamics/Astronautics Management Club Sept. 12 in a meeting set for the Fleet Room, OceanHouse.

The occasion will mark Lewis' first Management Club appearance at GD/Astro. He is due to speak Sept. 11 to the GD/Convair club.



Roger Lewis

The affair will be "closed" to all but club members who must present a ticket and a club membership card for admittance. Material department is sponsoring.

Lewis, former Assistant Secretary of the Air Force, was named president of General Dynamics in February. Prior to that time he was executive vice president of Pan American World Airways. From 1947 until 1950 he was with Canadair Limited and rose to vice president for sales.

Although no topic has been announced for his speech, Lewis is expected to touch on such subjects as goals for General Dynamics and plans for achieving them, management philosophy and characteristics sought in management personnel and ways and means Management Club members may help achieve corporate goals while improving and developing as managers.

Social hour will be from 5:30 until 6:30; dinner from 6:30 until 7:30; business from 7:30 until 8; followed by the principal address.

Nova Studies Hold Hopes of Breakthrough

Experimental manufacturing work aimed at developing advanced techniques will be a key objective at General Dynamics/Astronautics during a nine-month study and preliminary design contract for Nova space vehicle systems.

Details of the $1-million award were announced this month by the George C. Marshall Space Flight Center, National Aeronautics and Space Administration (NASA).

A parallel study contract was also awarded Martin Marietta Corp. which will coordinate its efforts with those of Astronautics.

Andrew Kalitinsky has been selected by Astro President J. R. Dempsey as Nova program director (**General Dynamics NEWS**, Aug. 15).

Kalitinsky's organization is already at work on such phases as studies to determine the most economical vehicle size, type of design, propulsion system, and number of engines, defining in as much detail as possible the most desirable vehicle that can be built.

Missions proposed for Nova in the 1970s include support of passenger and cargo delivery to the moon's surface; establishment of large space stations in orbit; direct launch of unmanned planetary probes; and orbital assembly

(Continued on Page 2)

Air Schedule Changed Due to Long Weekend

Holiday schedules affecting airlifts flown in support of General Dynamics/Astronautics programs have been announced for the long Labor Day weekend.

Flight 61 connecting San Diego and Cape Canaveral via Denver will not operate Sept. 2 (eastbound) or Sept. 3 (westbound).

Flights 12 and 13 linking San Diego, Norton AFB, Edwards AFB and Vandenberg AFB will not operate Sept. 3.

Flight 602 from San Diego to Omaha and Plattsburgh AFB will operate eastbound Sept. 2 and westbound Sept. 3.

Flight 24 connecting San Diego, Walker AFB, Dyess AFB, Altus AFB, Schilling AFB and Lincoln AFB will operate eastward Sept. 3, westward Sept. 4.

Logair freight shipments will be made from San Diego Sept. 1, but will not be conducted Sept. 3.

Employees who may have occasion to be traveling by air over the weekend are reminded of Operation Sky Shield III which will be conducted from noon until 5:30 p.m. (PDT) Sept. 2. Only military aircraft will be allowed in the air at that time.

Aerospace Glossary Copies Available

A limited number of copies of an Aerospace Abbreviations Glossary prepared by General Dynamics/Astronautics are available to interested offices or functions.

This is the fourth revision, dated May, 1962.

The glossary is a comprehensive listing of abbreviations used at General Dynamics/Astronautics and throughout the aerospace industry.

Requests for copies, including a justification of need, may be forwarded to G. S. Hunter, Dept. 604-0, mail zone 604-00, Plant 2.

College to Conduct Plant 71 Courses

Five San Diego City College courses will be offered General Dynamics/Astronautics employees for the coming term, with all classes held at Plant 71.

For employees attending after working hours fee is $1.50 (for City College student activity card).

Two 40-hour courses will meet from 4 to 6 p.m., Mondays and Wednesdays, beginning Sept. 17. Blueprint meets in Room 2, Bldg. 17, while Optical Tooling convenes in Room 16, Bldg. 33. Both are non-credit courses.

Earning three units are the following 90-hour classes which meet Tuesdays and Thursdays beginning Sept. 11: Basic Electronics, Room 3, Bldg. 7, 5-7:30 p.m.; Basic Electronics, Room 10, Bldg. 17, 4:30-7 p.m.; and Electronics Theory, Room 11, Bldg. 33, 4-6 p.m.

Prospective students have been asked to call Laura, ext. 1933, to reserve class space.

Joseph Moore Singled Out to Receive Award

Joseph A Moore, General Dynamics/Astronautics missile checkout and acceptance assistant foreman, last week received the first Commander's Award presented by the Air Force Space Systems Division.

Lt. Gen. Howell M. Estes Jr., commander Space Systems Division, AF Systems Command, presented the award during a ceremony at Astronautics' main plant.

General Estes singled out Moore as typical of Astronautics employees who have "contributed so extensively to the success and reliability of the United States Air Force's Mercury-Atlas space launch vehicle program."

Moore has participated in the checkout of every Mercury-Atlas produced at Astro, including those responsible for the two successful manned orbital flights.

C. S. Ames, vice president and program director—space launch vehicles, said that Moore has exhibited personal interest and abilities well beyond those normally expected, to the definite advantage of the Mercury program.

General Estes created the Commander's Award as a means of granting recognition to outstanding people in industry for contributions to Air Force space programs.

(Ballistic Systems Division has presented a similar award to industry personnel, including several Astro employees, over the past two years.)

Tool Store Hours At Plant 2 Changed

New hours for the Astronautics tool store at Plant 2 have been announced.

Located at Col. D-10, Bldg. 2, the store is now open from 1:45 until 4:30 Monday through Friday.

The main tool store, located at Col. H-1, Bldg. 5, at the main plant continues to be open from 9 a.m. until 5:30 p.m., Monday through Friday.

Harry Murray Off To Post in Laos

Friends of Harry Murray, a member of the Marshall Space Flight Center, NASA, resident office at General Dynamics/Astronautics, bade farewell to him last week prior to a new assignment.

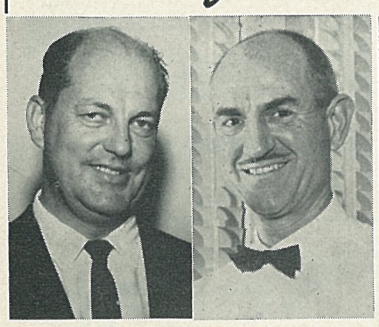
Murray departed for Laos where he will become a supply and procurement adviser to that nation. He is employed by Agency for International Development, U.S. Department of State.

A veteran NASA staff member, Murray has been at Astro for about six months. Prior to that time he worked at Huntsville, Ala., in procurement activities on other ballistic missile programs. From 1945 until 1958 he served in Europe in a procurement advisory capacity.

GRATITUDE—Maj. W. C. Conrad of Volunteers of America beams appreciation as Larry Janson, Con-Trib-Club committee member, presents organization with gift of $2,000.

SIGNING UP—Cindy, center, and Frances Zogg (Dept. 191-0) sign up with Sherry Miller, professional instructor, for series of charm courses being offered under ARA auspices at San Diego. Teen-age class for Cindy opens Sept. 10, adult class for Frances on Sept. 11.

Log Book Entries



New 25-year men at GD/Astronautics are Vincent S. Caldwell, (Dept. 141-4), left, and William O. Blakesley, (Dept. 680).

Service Emblems

MAIN PLANT

Service emblems due during the period Aug. 16 through Aug. 31.

Twenty-five-year: Dept. 574-3, W. O. Blakesley.

Twenty-year: Dept. 154-1, H. J. Ferguson; Dept. 222-2, J. C. Saunders; Dept. 403, D. B. Campbell, Donald Crayton; Dept. 454-0, J. E. Wagner; Dept. 545-5, G. C. French; Dept. 756-0, C. W. Zagami; Dept. 759-0, L. M. Hernandez; Dept. 771-0, R. T. Jurgensen.

Fifteen-year: Dept. 105-0, Elizabeth N. Gerding; Dept. 130-1, J. M. Aguilar; Dept. 223-1, H. L. Collins; Dept. 521-1, H. E. Mayer; Dept. 951-3, W. W. Kenney.

Ten-year: Dept. 101-7, A. E. McQuoid; Dept. 143-3, Marie J. Russell; Dept. 144-1, D. C. Ruzich; Dept. 152-0, Jeanne E. Kunde; Dept. 191-0, Esther W. Howard; Dept. 250-1, R. M. Meekin. Dept. 401-5, H. F. Hudson; Dept. 521-6, V. C. Caldwell; Dept. 526-0, R. C. McCarty; Dept. 531-3, W. B. Ramsey; Dept. 538-6, Norman Van Zanten; Dept. 580-7, Wilfred Nugent; Dept. 756-0, D. R. Dayharsh; Dept. 782-0, W. A. Duzyk; Dept. 812-1, G. F. Thatcher; Dept. 964-3, J. R. Harris.

AFMTC

Ten-year: Dept. 571-4, J. E. Robinson.

ALTUS AFB

Twenty-year: Dept. 617, A. I. Standridge, J. A. Thomas.

Fifteen-year: Dept. 617-3, Jack Christian.

Ten-year: Dept. 617-7, N. L. Jones.

DYESS AFB

Fifteen-year: Dept. 618-3, A. L. Brady.

LINCOLN AFB

Ten-year: Dept. 616-0, E. H. Weinsheimer.

PLATTSBURGH AFB

Fifteen-year: Dept. 620-8, W. C. Ryan.

SCHILLING AFB

Twenty-year: Dept. 615-2, M. E. Horton.

Fifteen-year: Dept. 615-7, R. C. Parker.

SYCAMORE

Ten-year: Dept. 573-3, J. W. Barham.

VANDENBERG AFB

Fifteen-year: Dept. 576-3, H. F. Clemens.

Ten-year: Dept. 576-3, C. W. Floyd.

WALKER AFB

Ten-year: Dept. 619-9, D. F. Schneible.

Births

MAIN PLANT

FOGG — Daughter, Shawn Elizabeth, 6 lbs., 9 oz., born Aug. 9 to Mr. and Mrs. Donald R. Fogg, Dept. 344-3.

PARSONS—Daughter, Karen Michelle, 6 lbs., 1 oz., born July 23 to Mr. and Mrs. C. V. Parsons, Dept. 401. Mother, Mickey Parsons, on leave from GD procurement office.

LINCOLN AFB

HOLCOMBE—Son, Thomas Allan, 8 lbs., 12 oz., born June 16 to Mr. and Mrs. R. R. Holcombe, Dept. 616-2.

SCHILLING AFB

COLLINGHAM—Son, Michael Adam, 6 lbs., 1¾ oz., born Aug. 5 to Mr. and Mrs. D. L. Collingham, Dept. 615-2.

WALKER AFB

MURDOCK—Son, Gerald Thompson, 6 lbs., 13 oz., born June 8 to Mr. and Mrs. John H. Murdock, Dept. 619-6.

Deaths

ALTUS AFB

ELLIS—James Clay, Dept. 617-9. Died Aug. 16. Survived by father, Harry Edward Ellis.

DYESS AFB

LOCKE—James K., Dept. 618-9. Died Aug. 12. Survived by wife, Grace McKinney Locke.

Promotions

MAIN PLANT

Promotions to and within supervision effective Aug. 13.

Dept. 010-4, Electronic Project Management: To asst. project manager, L. G. Chase.

Dept. 011, Electronic Program Control: To chief of task control and estimating, J. E. Green. To chief of schedule planning and control, A. S. Paukovec. To chief material requirements control, W. C. Ruzich.

Dept. 014-0, Electronic Financial Control: To manager of financial control, C. J. Marsden.

Dept. 020-0, Electronic Manufacturing Operations: To manager of manufacturing operations, C. A. Paul. To foreman, J. A. Sharp.

Dept. 021-0, Electronic Manufacturing Operations: To asst. group engineer, W. R. Skinner.

Dept. 030-3, Electronic Field Operations: To chief of GLOTRAC field operations, G. R. Goddard Jr.

Dept. 128-0, Communication: To office services supervisor, K. G. Blair, R. W. Coover.

Dept. 143-7, Inspection: To inspection asst. supervisor, W. L. Colahan.

Dept. 144, Support Quality Control: To process control supervisor, H. H. Mishler. To process control asst. supervisor, G. R. Koch.

Dept. 170-1, Organization and Systems: To organization and systems supervisor, M. W. Miesse.

Dept. 250-2, Plant Engineering: To plant engineering asst. supervisor, E. G. Kiener.

Dept. 305-0, Support Administration: To planning and estimating asst. supervisor, J. A. Domowitz. To support task control asst. supervisor, R. Hughes.

Dept. 320-1, Support Engineering: To support publications asst. supervisor, J. K. Bishop, F. W. Harrah. To support publications supervisor, R. A. Dilworth.

Dept. 322-5, Support Publications: To support publications asst. supervisor, H. D. Casalou.

Dept. 330-2, Support Logistics: To clerical asst. supervisor, W. F. Leonard.

Dept. 351-1, Field Modification: To field modification group engineer, F. E. Cordia.

Dept. 362-1, Atlas Weapon System Program Control: To master scheduling asst. supervisor, A. H. Mandale.

Dept. 363-1, Atlas Weapon System Program Control: To budget supervisor, H. E. Zehring.

Dept. 365-0, Atlas Weapon System Program Control: To chief of administration services project, J. T. Helstowski.

Dept. 381-0, Atlas Weapon System Manufacturing Operations: To chief of production engineering project, H. M. Edwards. To chief of final assembly checkout project, L. Ely.

Dept. 384-0, Atlas Weapon System Manufacturing Operations: To tooling supervisor, L. Rollo Jr., J. B. Griffin.

Dept. 450-0, Tool Manufacturing: To general foreman, J. R. Evans.

Dept. 454-0, Plaster Plastic Foundry: To foreman, W. R. Walker.

Dept. 640-0, Space Launch Vehicle Program Control & Administration: To chief of administrative services, C. L. Van Deusen.

Dept. 642, SLV Financial Control: To estimating supervisor, C. H. Meyer. To estimating asst. supervisor, J. L. Rolston. To accounting asst. supervisor, F. S. Mascari.

Dept. 644-0, SLV Project Administrative Support: To work measurement supervisor, G. N. McMillan.

Dept. 670-0, SLV Manufacturing Operations: To chief of final assembly checkout project, P. R. Lewellan Jr.

Dept. 671-1, SLV Production Engineering: To tooling supervisor, J. J. Zamiska.

Dept. 700-0, Factory Office: To general foreman, W. H. Rumbaugh.

Dept. 954-1, Centaur Program Control: To accounting asst. supervisor, D. Celac.

Dept. 961-7, Centaur Design Engineering: To design group engineer, J. J. Gilbeau.

Dept. 974-4, Centaur Test Operations: To flight test group engineer, T. A. Hutchinson.

AFMTC

Dept. 571-6, GD/Astronautics Operations: To data processing asst. supervisor, K. L. Loynes.

ALTUS AFB

Dept. 617, GD/Astronautics Operations: To material control asst. supervisor, W. B. McClure. To inspection asst. supervisor, R. D. DiBene, E. E. Black.

DYESS AFB

Dept. 618, GD/Astronautics Operations: To inspection asst. supervisor, W. L. Klepper, W. E. Tandy.

VANDENBERG AFB (PMR)

Dept. 682, SLV Launch Operations: To site manager, F. M. Anderson. To flight test group engineer, E. C. Sims.

PLATTSBURGH AFB

Dept. 620-6, GD/Astronautics Operations: To cost control supervisor, R. C. Anderson.

Nova Studies Offer Breakthrough Hope

(Continued from Page 1)

of spacecraft for manned planetary missions.

Nova is expected to be capable of boosting a minimum 500,000-pound payload into low earth orbit or a minimum 200,000-pound payload to earth-escape velocity.

While Nova work is centralized into a project organization, no separate departments are being established during the study. However, departments will support the program with personnel as needed.

Dempsey has indicated the project is operating under the highest company priority, due to ite importance to the nation in the 1970s and beyond.

General Dynamics NEWS

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* * *

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Changes Noted In Realm of Tuition Refund

General Dynamics/Astronautics employees planning to enroll in college courses this fall are reminded by Jack Croft, chief of educational services, of current policies governing tuition refund.

Astronautics will reimburse students taking job-related courses only, or those considered "of benefit to the company." The latter may include courses not directly related to the employee's present job but which equip him for positions of more responsibility of a higher skill level.

Tuition refund regulations governing summer courses remain in effect. Refund of up to $150 per year for college-level courses completed at an accredited school with "C" grades or better are possible.

Refunds are not made for correspondence courses or commercial business school instruction. And refunds for general education courses (once paid if the degree was in a job-related field) are no longer applicable.

Students must submit a "Request for Tuition Refund" form to educational services within three weeks after the class starts.

Those attending California Western University who submit these forms early may be allowed to take advantage of a deferred payment plan which allows tuition costs to be paid in three installments during the class period.

Information on all phases of the program is available through educational services offices at the main plant (ext. 1933) or Plant 2 (ext. 1182).

English Course Closes Sept. 14

Extension of the period for enrollment in a special course open to all General Dynamics/Astronautics employees—"Practical English and the Command of Words"—has been announced.

Students may now enter the course through Sept. 14 instead of the original deadline of Aug. 31.

Well over 1,600 employees have signed up for the course since it was first offered. It is available to employees for only $18, although cost to the general public is $48. No class attendance is required, nor written assignments included. Applicants register and take home a binder with the first 12 lessons. Thirty-six additional lessons, plus a bill of $18 for the course, will be mailed directly to the student's home.

Those who have already signed for the course, plus students desiring to sign up, may register or pick up their binders at one of the following locations:

At Plant 71, R. T. Bauman (Dept. 756-0), Bldg. 5, Col. F-2; at Plant 1, R. S. Barlow (Dept. 756-0), Bldg. 18; at Plant 2, L. Rodrigues (Dept. 337-1), Bldg. 4, Room 210; at Plant 92, Al Amison (Dept. 224-0), Col. H-8; and at Sycamore Canyon, E. S. Ely (Dept. 573-5), Administration Building.

ASTRONAUT PHOTOS ON LIMITED SALE

Continued interest in photographs made during the visit of Astronauts John Glenn and Scott Carpenter to General Dynamics/Astronautics has prompted ARA to obtain a limited number of reproductions for sale.

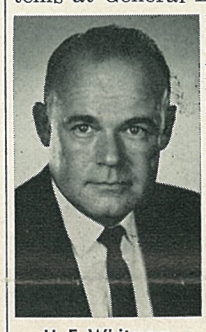
Eight selected photographs of the Astronauts at Astro, plus two showing lift-off aboard an Atlas missile, have been compiled into a handy pocket-sized packet. Again, these are actual photographs, not reprints.

The packet was sold for the first time during "ARA on Parade" for 50 cents each. They are now available for the same price through employee services outlets.

NICE SELECTION — Juanita Harris (Dept. 250) of Astro was recently selected "Miss Tool Engineer" by San Diego members of American Society of Tool and Manufacturing Engineers. Other Astro candidates in San Diego contest were Sydney Garrison, Marilyn Clark and Marilyn Harris.—Photo by Gerhart Gross and Joe Kayda, Astrolens.

CENTAUR SYSTEMS MANAGER APPOINTED

Harry E. Whitmore has been named manager of Centaur systems at General Dynamics/Astronautics by Grant L. Hansen, vice president and program director—Centaur.



H. E. Whitmore

Initially, Whitmore is serving in a staff capacity to study currently outstanding Centaur system capability problems, according to Hansen.

A native of Denison, Texas, Whitmore is a graduate of Texas A & M College (BS-mechanical engineering) and Purdue University (MS-mechanical engineering) and has served for the past 20 years in the U. S. Army.

His most recent assignment was as director of the West Coast office of the Army's ADVENT program. From 1958-60 he was deputy Director of the Ballistic Research Laboratories, Aberdeen Proving Grounds and from 1955-58 was chief of systems test division, White Sands Missile Range. He has an extensive background in Army technical and program management fields and at one time headed the Resident Ordnance Office at Douglas Aircraft.

BLOOD VOLUNTEERS RESTORE CREDIT

Engineering and Centaur program employees turned out sufficient volunteer blood donors Aug. 9 to help General Dynamics/Astronautics overcome an "in the red" condition within its blood bank program.

During a visit of the bloodmobile from the San Diego Blood Bank, 190 pints of blood were collected.

This blood is now available to Astro employees and their dependents at the Blood Bank.

Requests for blood have averaged above 50 pints per month, which drastically cut into low reserves. Another bloodmobile visit is now slated for November.

Con-Trib-Club Funds Donated In Four Areas

Health and welfare agencies in four areas received disbursements from General Dynamics/Astronautics Employees' Con-Trib-Club over the past month through action taken by Con-Trib's Board of Directors.

In the San Diego area funds went to: The Salvation Army ($4,000); Pathfinders ($1,000); Muscular Dystrophy Association ($2,000); International Guiding Eyes, Inc. ($1,000); Volunteers of America ($2,000); and Southeast YMCA ($261.50).

At off-site locations, St. Mary's Hospital of Roswell, N. M., received $900; the Children's Home of Northern New York, Plattsburgh, received $1,000; Asbury Protestant Hospital, Salina, Kan., received $1,500; St. John's Hospital, Salina, $1,500; Salina Community Chest, Salina, $1,500; Salina County Mental Health Association, Salina, $500; and the National Multiple Sclerosis Society, Salina, $500.

Action on off-site grants was taken following recommendations by Con-Trib-Club Advisory Committees at the respective bases. This is in keeping with Con-Trib's policy of returning money donated by employees in off-site locations to that area for disbursement.

Con-Trib-Club's Emergency Aid Fund, a single fund administered for Astro employees everywhere to help them meet expenses beyond their means, has also been extremely active. This is not a loan, but an outright grant.

During the last report period (July 9 through Aug. 5) some $6,994.30 was disbursed for an average payment of $249.78 per case. Some 10 cases were carried over from the previous period and 29 new applications filed for aid. Of these, 28 were granted aid and 11 are pending, although of these eight have already received partial aid.

PROD. ENGINEERING LINEUP ORGANIZED, GROSSAINT AS HEAD

Establishment of a production engineering organization within General Dynamics/Astronautics has been announced by J. R. Dempsey, president.

The organization is headed by G. A. Grossaint, manager of production engineering, who reports to E. D. Bryant, vice president—operations.

Dempsey indicated the rearrangement of functional reporting within operations department groups brings together all activities concerned with the "how" of manufacturing, to shorten communication lines and more clearly delineate responsibilities and authorities.

Reporting to Grossaint will be: V. G. Mellquist, chief of applied manufacturing research and process development; H. L. Williamson, chief of operations planning and methods; N. L. Jones, superintendent of tool manufacturing; and C. C. Pope, tool project engineer.

Within Williamson's function will be H. J. Sumner, tool engineering general supervisor; J. R. Couchois, methods engineering supervisor; W. F. Van Dusen, methods engineering supervisor; and H. R. Cowell, proposal development supervisor.

Reporting to Jones are J. R. Evans and M. Ramsey, both tool manufacturing general foremen.

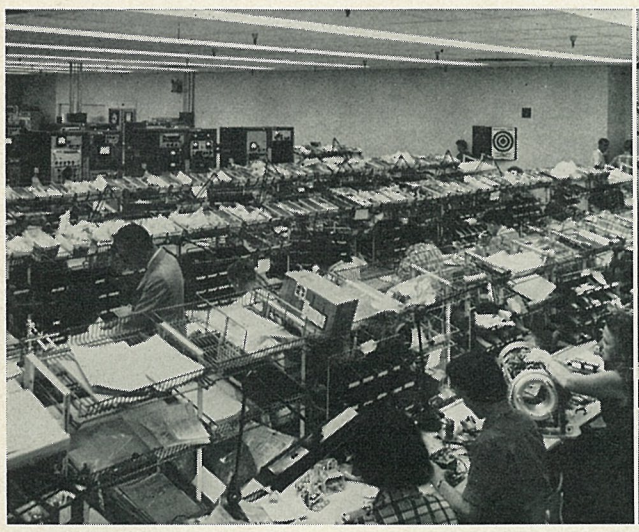
Pope's function includes D. R. MacGregor and C. E. Roye, both tool project supervisors.

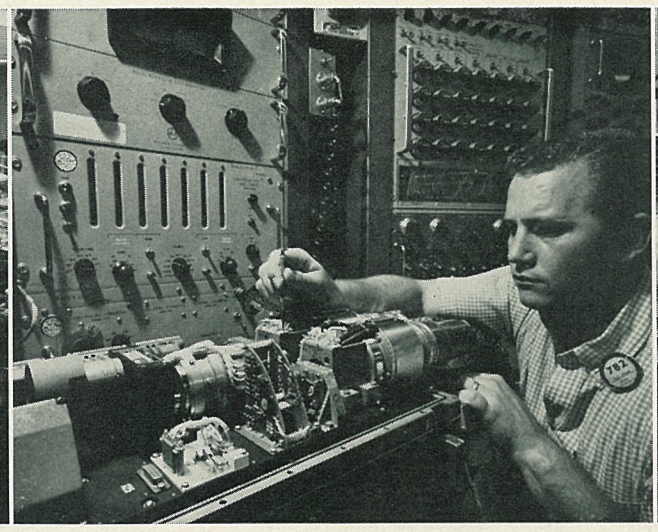
Young Accordionist Wins Festival Honors

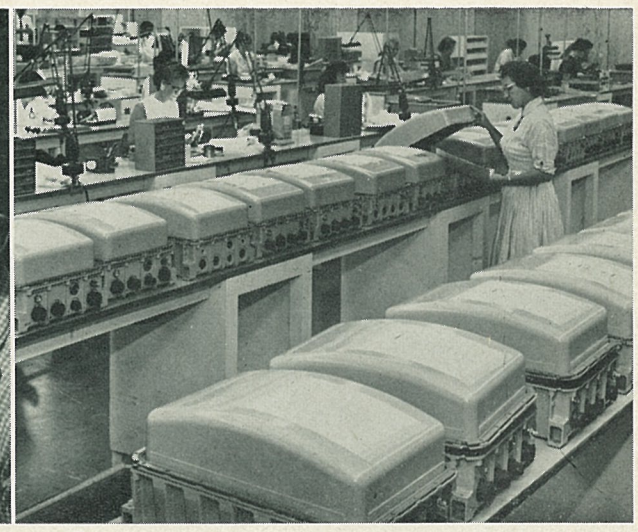
Virginia Burton, 10, daughter of Ellen Burton, GD/Astro Dept. 343-7, carried off second place honors in the annual All-Western States Accordion Festival in Long Beach, Calif., Aug. 10-12.

During the six years she has competed in this event, she has taken four second-place awards, one third, and last year she was first-place winner.

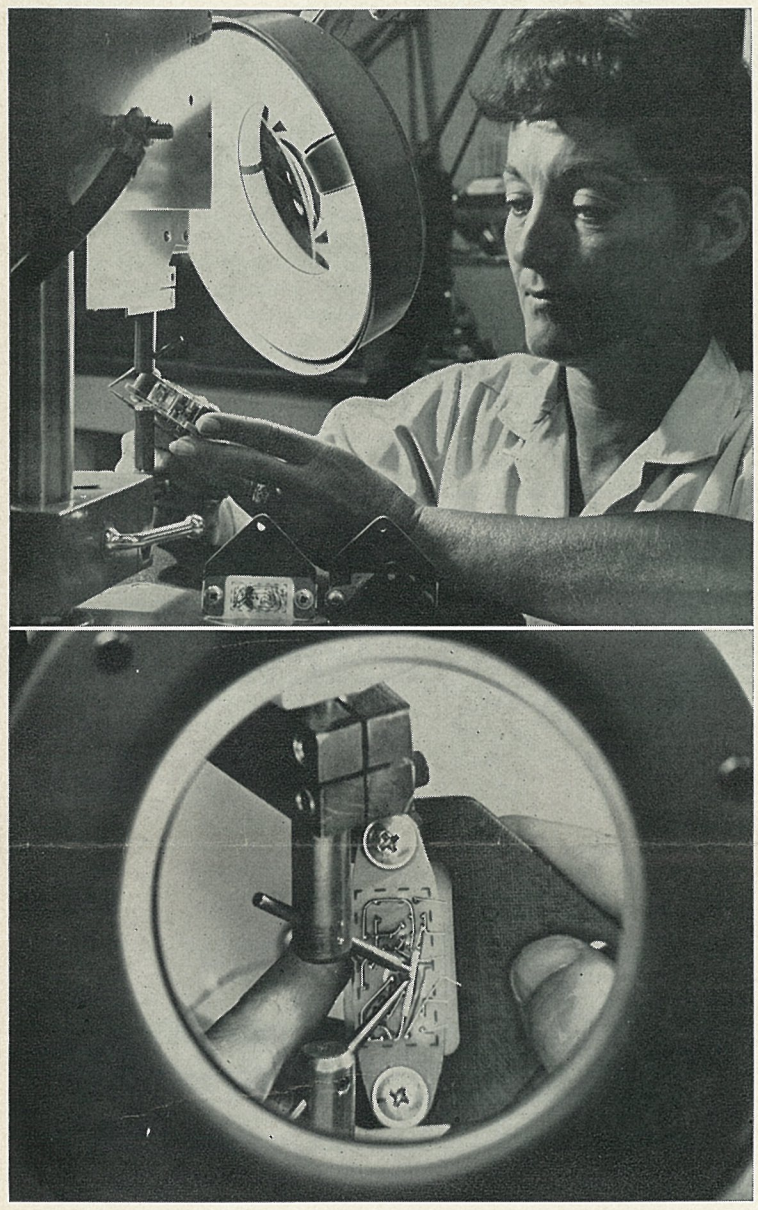
Virginia started taking accordion lessons when she was 5, and six months later, in her first competition at the festival, she placed second.







BUILT-IN RELIABILITY—GD/Astro personnel at San Diego, whose work requires vast precision and skill, support electronic products program. Some idea of complexity of their products is indicated in center above as H. O. Stone adjusts telemetry package. At left, Russ Oexner offers assistance on assembly line. At right are banks of autopilot programmers being checked by Vickie Marine. Among products produced in program is AZUSA missile tracking system.



DRAMATIC—Carmen Thompson works with deft fingers, guiding tiny module under welding tips. Finished product has great strength, high reliability. Below is what she sees through magnifying lens of ring-light.

AZUSA Tracker Failure Free During Long Period of Use

This month, General Dynamics/Astronautics AZUSA Mark II automatic missile tracking system marked its second anniversary of operation at Cape Canaveral, maintaining a failure-free record over nearly 200 tests!

Produced at GD/Astro by electronic products (departments in the 010-030 series) under executive direction of S. L. Ackerman, vice president and program director, AZUSA is one of a number of precision, high-quality electronic products now operational or under development. Lew Emmerich is assistant program director.

AZUSA is used for ground trajectory measurement with an airborne transponder (also GD/Astro-built). Signal exchange between the two permits ground equipment to predict impact point at all times during flight. The advanced system can also be used for space vehicle command, telemetry data transmission, space-probe tracking, and space communication.

Since installation of AZUSA Mark I at Cape Canaveral in 1953, over 400 missiles have carried AZUSA equipment.

Mark II, with improved accuracy and reliability and the first large ground tracking system making extensive use of solid-state (transistor) design instead of vacuum tubes, replaced Mark I at Cape Canaveral in 1960. The latter was then modified and transported to Grand Bahama Island where it continues service, primarily in Polaris and Minuteman programs.

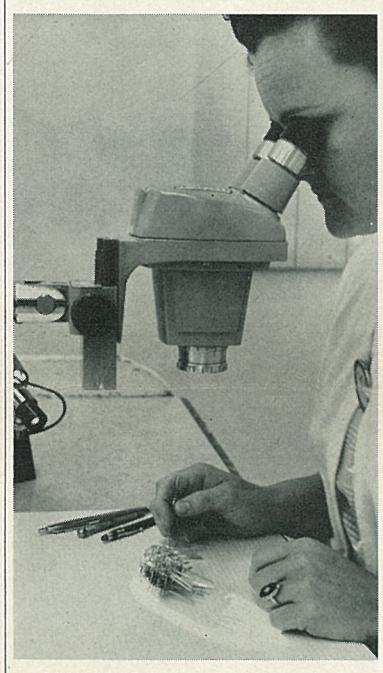
Together with AZUSA transponders, GD/Astro's electronic organization now pours a steady stream of varied equipment from its production facilities in Bldg. 33, with some production carried on in Bldg. 5.

Outgrowth of GD/Astro's 15-plus years of transponder development and production is a recently-announced contract with Air Force Cambridge Research Laboratories for production of a prototype lunar transponder (**General Dynamics NEWS**, Aug. 1.)

The device, weighing less than 10 pounds, will transmit to earth en route to the moon; then continue transmission after surviving lunar impact at about 3,000 times the force of its own "earth weight."

(Such miniaturization is an every-day task for GD/Astro electronic specialists: Astro-built airborne transponders have "reduced" from an original weight of about 100 pounds to their present trim 20-pound size.)

Stemming from highly successful AZUSA is GLOTRAC, a high-accuracy integrated global network for space-vehicle tracking now being designed and developed for Air Force Missile Test Center. Assistant program director for this project is T. H. Scholder.



UP CLOSER — Doris Jensen gives welded module close inspection under great magnification.

For nearly two years, GD/Astro has been producing scientific passenger pods—instrumented packages which permit Atlas and other launch vehicles to supplement their primary missions by carrying other experiments "piggy-back." Curt Bates is assistant program director.

ARENTS, supervised by Assistant Program Director H. M. Ikerd, is a satellite to evaluate the environment of high space—to 20,000 miles. One model of the satellite is now undergoing test in GD/Astro's vast environmental test chamber.

Ackerman cited two principal reasons for GD/Astronautics success in the space field.

"As much as any company in the business, we have an intimate, working knowledge of precision tracking equipment," he said.

"In addition, because of our work with Atlas as a pioneering ballistic weapon and space launch vehicle, we have a thorough understanding of ballistic and orbital flight trajectories and the associated tracking problems."

In fabrication, GD/Astro is one of the first companies to apply the high-density "welded module" technique of electronic manufacture on a production basis, Ackerman explained.

First used on autopilot systems, the technique which involves making electrical connections by welding instead of conventional solder, is now being used in GLOTRAC manufacture. It results in extremely compact construction.

SAC Railway Trains Operate As Mobile Bombing Scorers

Dormitories on rails have joined the inventory of Strategic Air Command.

An eight-car train serving the 15th Air Force (composed of bases in western U. S.) has been provided for the 65-man crew which operates SAC's mobile radar bomb scoring (RBS) trains.

There are three of these trains in operation in the U. S. to provide B-58, B-52 and B-47 jet bomber crews with a wide range of unfamiliar targets and routes.

Second and Eighth Air Force trains will receive identical equipment later in 1962.

The eight-car train is self-sustaining, with four cars divided into compartments to allow comfort and privacy for men during off-duty hours. Each car provides accommodations for 18.

Other features include electric washers and dryers, washroom facilities, and a utility car which offers space for a base exchange and movie projection area. The dining car has facilities to seat 40 men at one time.

GD/Astro Son and Former Employee Completing Peace Corps Training

LINCOLN AFB—Michael Eiland, a former GD/Astronautics employee here and son of Astro's Gordon Eiland, traffic and stores foreman here, is now in the final phase of training for Peace Corps service.

He recently returned from four weeks of training for Peace Corps duty in Puerto Rico. Final training is at Putney, Vt. While Eiland is not sure of his initial assignment overseas, he hopes to go to Peru.

During Puerto Rico training he and fellow students spent 12 hours per day in classes on nutrition, Spanish, Latin American history, world affairs, health, medicine, physical education and Communist tactics.

When actually assigned overseas, Eiland will receive a salary comparable to his Peruvian counterpart, possibly $100 per month. After two years with the Peace Corps he will be paid $75 for each month spent in service.

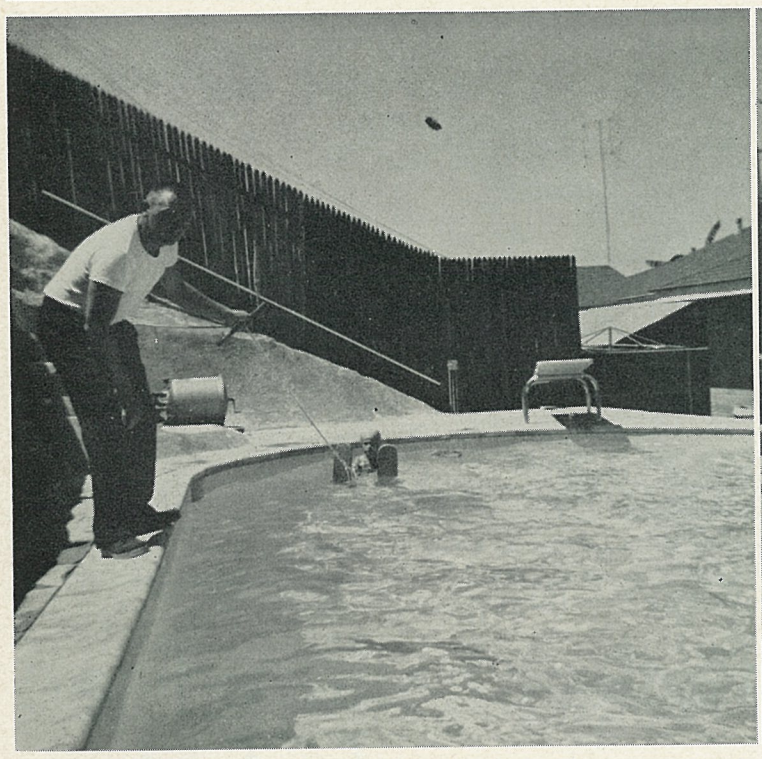
Prior to joining the Peace Corps, Eiland was a master schedules analyst for Astronautics here.

FW Design Engineer Takes Navy Duty

Robert L. Burns, GD/FW senior design engineer, recently spent 14 days active duty at Naval Air Station, Los Alamitos, Calif.

The Naval Reserve lieutenant and pilot learned latest techniques of anti-submarine warfare with his squadron, VP701, home-based at Dallas Naval Air Station.

MOVING SKYWARD—Atlas missile going through tests at Altus AFB rises from silo spouting vapor through liquid oxygen boil-off valve. Operation was part of continuing check "birds" go through in validating facilities. George Smith, Astro photographer at Altus, made this shot.



PRACTICE RUN—At left, GD/Convair's Bob Clayton prepares to play tow boat for daughter Debra. At right, another daughter, Donna, planes surface of family swimming pool. It's fun for kids, and keeps Clayton in shape! Father discovered possibilities as training ground by accident. Mrs. Clayton faces learning by conventional method behind towing boat.

Practicing

Children Learn To Water Ski in Backyard Pool

Fantastic as it sounds, a GD/Convair father has taught his three small girls to water ski in the safety of a backyard pool!

Just this month, Bob Clayton, GD/Convair transport service engineering, bought skis for the family for the first time. Thinking it would be a good idea to teach his daughters, Diane, 10, Donna, 9, and Debra, 8, how to put on skis in the water, he put them in life jackets and tried this in his 35-ft. pool.

After they had mastered this trick, the next logical step, he reasoned, was to simulate the starting jolt. To accomplish this, he rigged a 20-foot rope with handles and commenced to run along the poolside, rope in hand.

To his surprise, when he turned his head, he saw Debra rising to the top of the water in skiing position. Encouraged by this development, Clayton spent several days teaching his girls at home. Now Clayton is sold on his method for teaching youngsters because, on their first trial at Mission Bay, the girls all performed like veterans.

"I know this method is much safer for the small fry and you can get more practice starts in less time than using a boat to pull the pupil. With a boat you're constantly turning around and retrieving the skier.

"In the pool, if the pupil falls, you just give another pull. Besides, it is cheaper and easier than driving out to a bay or lake. It's particularly helpful if you have only a few minutes to practice," said Clayton.

Unfortunately for his wife, Barbara, adults are too large to tow by hand. Clayton intends to teach Barbara to ski in the conventional manner with a boat and probably a few rough dunkings in waters of Mission Bay.

At least, the girls will be able to give their mother some helpful pointers!

American 990s On Exhibition

American Airlines will ground 990 Astrojets at six airports for public inspection this Sunday (Sept. 2) during Operation Sky Shield which closes the skies to commercial operations for five-and-a-half hours.

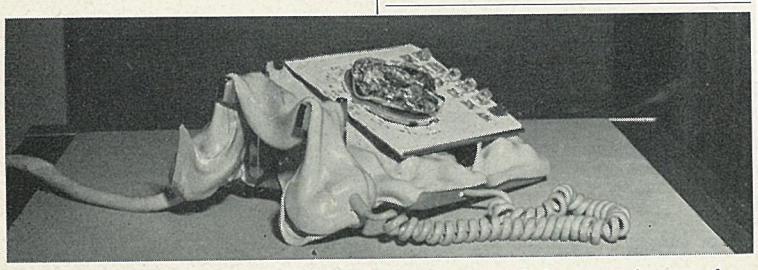
Convair 990 airliners will be seen at Cincinnati, Dallas, New York Idlewild Airport, Phoenix, Chicago, and Cleveland. Altogether, 13 of the Convair-built jet transports will be featured during AA open house at its various facilities.

This is the second year that American has invited the public to inspect its aircraft and ground facilities during the North American Air Defense exercise which grounds all planes except military aircraft.

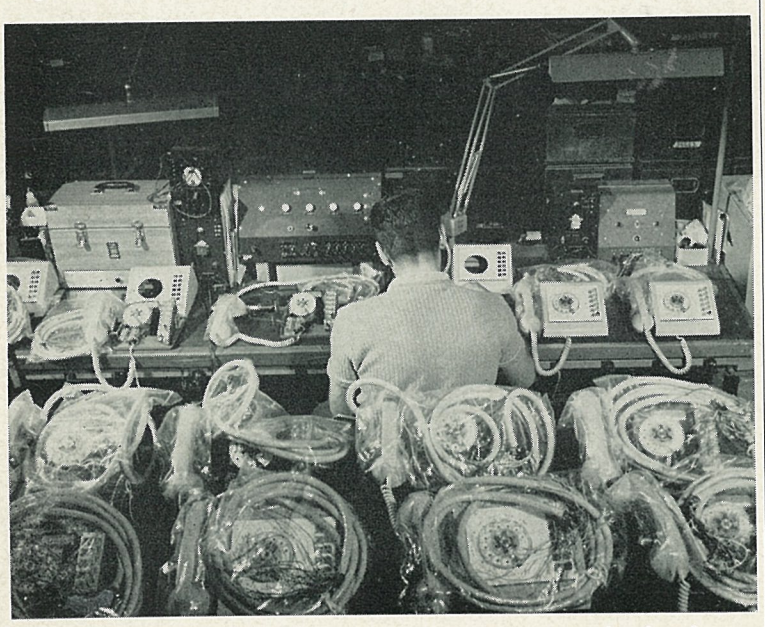
New Phone Offers Tiny 'Switchboard'

Production is at full swing on new push-button "Stromberg-Carlson" business telephones at GD/Telecommunication, Rochester, N. Y.

The ultra modern phone becomes a miniature switchboard, providing up to five lines, with intercom and "hold" on all lines. A companion phone offering up to 11 lines and all the same features will go into production in the near future.



"HOT" ITEM—This is what happened to push-button phone when control failed during test chamber drill and heat soared above 200 degrees!



PUSH-BUTTON—Fred S. Gala of GD/Telecommunication is surrounded by new "Stromberg-Carlson" push-button business telephones as they come off assembly line at Rochester, N.Y.

Wow and Wow!

GD/FW Couple Rework Pickup, Give it 45 Coats of Purple

Can you imagine a bright purple pickup truck with orchid and white interior and purple carpeting?

Dorothy and E. L. "Sonny" Boyette can—and did. The result has earned the GD/Fort Worth couple over 12 trophies in national rod and custom car shows throughout the U. S.

CUSTOM TRUCK—E. L. "Sonny" Boyette, GD/FW Dept. 30, and wife Dorothy, Dept. 6, inspect their custom Chevrolet pickup.

Dorothy, a Dept. 6 clerk, and Sonny, a Dept. 30 machinist, purchased a 1957 Chevrolet Cameo pickup truck about a year ago and went to work.

To make the pickup "different" the Boyettes sprayed on 45 coats of bright purple paint, mixed with a special pearl paint from California. "It makes it sort of stand out," Dorothy said in understatement.

Then out came the regular motor and in went a chromed Corvette engine, with detachable purple carpeting under the hood!

"We upholstered the interior in orchid and white," Dorothy said. The upholstery was also rolled and pleated and stitched about an inch apart.

The pickup bed was lined with a hardwood maple floor in natural finish, with chrome strips six inches apart. Inside wall of the bed is carpeted in purple, with outside striped in pearl fiber glass.

"Sonny's Sunday Hauler," as the Boyettes call their purple pickup, has no hub caps. But the bolts are chromed, and the wheels were reversed to bring out a flashy six-inch chrome rim.

Not resting on their laurels, the Boyettes are now "customizing" a 1934 Ford roadster. It'll be Sonny's favorite color—bright orange.

The Boyettes have two other cars ready for refurbishing, a 1939 Ford convertible and a 1936 Ford tudor convertible. They "drive" a 1958 Thunderbird.

The Boyettes' zeal for custom cars has spread to a fellow-employee, Ned Kensinger of Dept. 6. As a starter, he's mating sections of a Chevrolet and Ford.

"Sonny's Sunday Hauler" and a host of other custom cars will be on exhibit in a big show this Sunday at Will Rogers' Coliseum.

Adv. Products Men to Speak

Top executives of Advanced Products Department of General Dynamics Corporation will participate in two machine tool seminars conducted by American Society of Tool and Manufacturing Engineers in October.

W. G. Mang, general sales manager of Advanced Products Department, headquartered at San Diego, will deliver a paper at the Oct. 1-5 meeting in Los Angeles, Calif. The title will be "High-Energy Rate Forming."

The second paper will be given by J. A. Kline, Advanced Products manager of research and development, at the ASTME meeting in Chicago later the same month. His paper is titled "Expanding the Capabilities of the Pneumatic-Mechanical Process."

Developments in other areas of the high-energy rate process will be included in Kline's paper, including an analysis of lubricants and anti-weld agents for pneumatic-mechanical forming and formulas to determine the correct forging temperatures and energy requirements of various materials.

Both papers will be available in published form through the Detroit offices of ASTME immediately following the seminars.

Advanced Products Department of General Dynamics designs, engineers, and manufactures the DYNAPAK high-energy rate metalworking machine which has gained increased acceptance throughout the metalworking industry due to its production reliability.

DYNAPAK equipment is the only pneumatic-mechanical high-energy rate equipment performing day-to-day production work in forging, extrusions, and metal compaction and has established leadership in the relatively new field. DYNAPAK equipment now is in operation throughout the United States and in Japan and Europe.

Dynamics Executives Chosen For Key Roles In Planning National Engineers' Week

First general meeting to map plans for the 1963 National Engineers' Week has been set for 7:30 p.m. Sept. 11 in the City Council Chambers, Civic Center in San Diego. All engineers are invited.

As in the past, General Dynamics Corporation officials in the area have been tabbed for key roles. The week will be held beginning Feb. 22, 1963, under the national slogan: "American Engineers Build for the Future."

RAdm. J. R. Davis, CEC, USN, is general chairman. His executive committee includes E. M. Getzoff (Astro) as executive general chairman. Getzoff is also 1963 state chairman. R. H. Biron, General Dynamics vice president, is a member of this committee.

Honorary directors include J. H. Famme, president of GD/Convair; J. R. Dempsey, president of GD/Astronautics; Mortimer Rosenbaum, executive vice president of Astro; E. D. Bryant, Astro vice president-operations; W. W. Withee, Astro vice president—research and engineering; and K. J. Bossart, Astro technical director.

Astronautics personnel named to committee appointments include Ted S. Cope, sub-committee co-chairman for public relations; Charles F. McCabe, sub-committee chairman for programs and events; H. H. Boynton, sub-committee co-chairman for records and communications; and Phillip J. Swanson, sub-committee chairman for professional societies liaison.

Giessinger Among Reliability Grads

L. M. Giessinger, research engineer at GD/Astronautics, was one of a group of students successfully completing a U.C.L.A. (Department of Engineering) course called "1962 Reliability and Statistical Methods in Industry."

The course, which drew 155 students, contained instruction in industrial reliability, basic measurements and standards and non-destructive testing.

Publications Editor Attends Convention

J. D. Meacham, publications editor at GD/Convair, is in New York this week representing the division at the annual convention of American Management Association Aug. 27-29.

Convention chairman is Dr. Robert F. Mager, consultant with Varian Associates, Palo Alto, Calif., engineering firm. Dr. Mager, an authority in the field of programmed instruction, conducted the initial training session for GD/Convair and GD/Astronautics men at San Diego early this year.

Dynamics Facilities Face Long Weekend

General Dynamics people everywhere will enjoy a three-day weekend with the observance of Labor Day.

Next Monday (Sept. 3) will be a holiday for all divisions in the United States. Only those persons necessary to maintain essential maintenance and security functions will be required to be on the job. They will be notified in advance by supervision.

Work shifts will resume at regular times on Tuesday (Sept. 4).

IN THE LAB—Richard Roeser, GD/Astro reliability engineer, watches as Emil Minette, photographer, demonstrates photomicrographic process, helpful in reliability studies.

'62 Harmon Trophy Added To B-58's List of Laurels

Lt. Col. William R. Payne of 43rd Bomb Wing has earned the 1962 Harmon Trophy for piloting a B-58 Hustler on the historic, record-smashing flight across the Atlantic last May.

Majs. William L. Polhemus, navigator, and Raymond R. Wagener, DSO, rounded out the three-man crew that streaked from New York to Paris in slightly under 3 hours, 20 minutes, averaging 1,089 mph.

The single flight began at Carswell AFB and proceeded over Washington and New York to Paris along the same 1927 trail-blazing route of Charles A. Lindbergh, second pilot in history to win the Harmon Trophy.

A record was also established for Washington-to-Paris: slightly over 3 hours, 39 minutes, averaging 1,048 mph.

Colonel Payne, a link-trainer instructor for the U. S. Army and later pilot of B-24s in World War II, has amassed over 8,500 flying hours.

The Harmon trophies are perpetual "American Awards for outstanding international achievements in aeronautics," preferably connected with scientific experimentation and research of world-wide importance.

Winning of the Harmon Trophy by Colonel Payne marks the fifth major trophy or award won by crewmen flying in the Mach 2 Hustler. Others include:

The Bendix Trophy—Awarded a B-58 crew for flying from Los Angeles to New York and back in slightly over 4 hours, 41 minutes.

Bleriot Speed Trophy—won by B-58 crew for streaking over a closed-circuit course of 1,073 kilometers (666 statute miles) in 30 minutes, 43 seconds.

The Thompson Trophy—in recognition of record-breaking flight that established three new world speed records over a 1,000-kilometer closed course.

Mackay Trophy—which considered the New York-to-Paris flight the "most meritorious flight of 1961."

All told, the Hustler has amassed a total of 12 world records since it became an operational member of the U. S. Air Force Strategic Air Command.

H. C. Keith Completes Reliability Course

H. C. Keith, GD/Astro standards laboratory group engineer, Dept. 561-3, has completed a course in reliability and statistical methods at University of California, Los Angeles.

Over 155 participants in the course received instructions in various applications of statistical methods and designs, including new features of industrial reliability, basic measurements and standards, and non-destructive testing.

MEMORIES OF LINDY—Lt. Col. William R. Payne, center, winner of famed Harmon Trophy for spectacular B-58 New York-to-Paris flight, is shown with crew which helped him set record, Majors Raymond R. Wagener, left, and William L. Polhemus.

New Technique Called For in Communication

Unless progress on information handling techniques is made soon "we'll all be buried—not by Mr. Krushchev but by the weight of our own paper."

This observation was made Aug. 17 by Mortimer Rosenbaum, executive vice president of General Dynamics/Astronautics, in a luncheon speech before California Western University's Management Seminar in Communication Technology meeting in San Diego.

Attending were executives from across the nation. Melvin Day, National Aeronautics and Space Administration director of scientific technical information, was a featured dinner speaker.

Rosenbaum spoke of the specific problems of a technical industry faced with a workday dilemma of selecting needed facts from the swelling flood of information being generated by science and technology. He urged a higher order of planning to come up with a communication rationale, or framework, in which to select, store and control information needed by engineers and scientists as of the time they tackle a design problem.

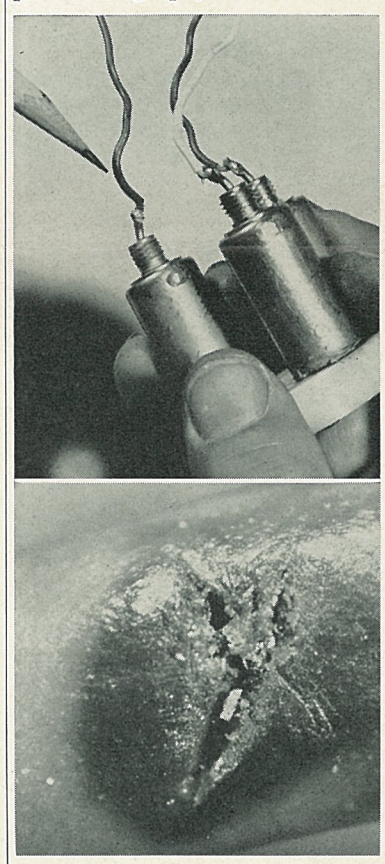
Secondly, he said, it is time for engineers and communicators alike to figure out the design of the information-handling apparatus that will be needed to support equipment at the same time the equipment itself is designed.

Citing timeliness, he said there is no point in collecting so much data for a man that he "cannot get his mind around it."

Rosenbaum suggested the use of symbols rather than words and computer data.

Cameras Reveal Clues To Causes of Failure

Microscopic imperfections, or damage to missile components now "show up big" for reliability control engineers at General Dynamics/Astronautics, thanks to photomicrography.



"BLOW-UP" — In top photo, pencil points to tiny insulation break, and in lower photo break is shown greatly magnified by camera. Technique is helpful in determining causes and eliminates bulky explanatory written reports.

This technique involves photographing subjects through microscope-type lens. With the subject greatly magnified, finished prints are used for analysis, documentation or study.

Photomicrographic equipment has been available at Astronautics for some time, although the present high level of use (30 to 50 jobs per week) stems primarily from increased utilization by reliability control laboratories.

"Prints augment many of our reliability control test reports," said L. A. Milton, reliability control group engineer. "They eliminate the need for lengthy written reports, reduce report preparation time and become a handy reference should we be called upon to repeat a test on any component or part."

A typical utilization involved a small part of a filter unit which failed at Plattsburgh AFB. Routine field examination turned up no clues as to why the part failed. It was routed to Astro's reliability control test laboratories for a hurry-up failure analysis. While laboratory technicians were able to duplicate conditions under which the part operated, they, too, were temporarily stymied as to the cause of failure.

Going further, the part was cut open for study. Examined under a microscope, the part was found to have a mere pin-point-sized break in insulation material covering a small wire. It was the cause of failure.

Photomicrography was brought into play with the break magnified many times for additional study. Finished prints went into the report which was sent to responsible parties for corrective action.

Astro's still photographic laboratory operates the photomicrographic equipment with Emil Minette as photographer.

Equipment consists of a bellows-type camera equipped with a microscope-type lens which can magnify subjects as many as 40 times. Additional magnification is possible in prints made from the standard 4x5-inch negatives exposed.

While the unit is mounted on a firm base for handy use, it can be rotated in any direction, making possible photographs of just about any type or size component. And it can be moved, if necessary, to handle larger sized objects such as an entire missile on the line.

Small flood lights are a part of the equipment which can also use larger studio illuminating facilities.

For "rush jobs" Minette inserts a Polaroid packet in the camera and comes up with a finished print within one minute.

Navy Requires Best in Aircraft And Ships, Says CINC Atlantic

The nation's newest Polaris submarine, the Alexander Hamilton, was launched at Groton, Conn., Aug. 18 as the Navy's Commander-in-Chief Atlantic warned that "less than the best in naval manpower and equipment is not acceptable for our nation's defense."

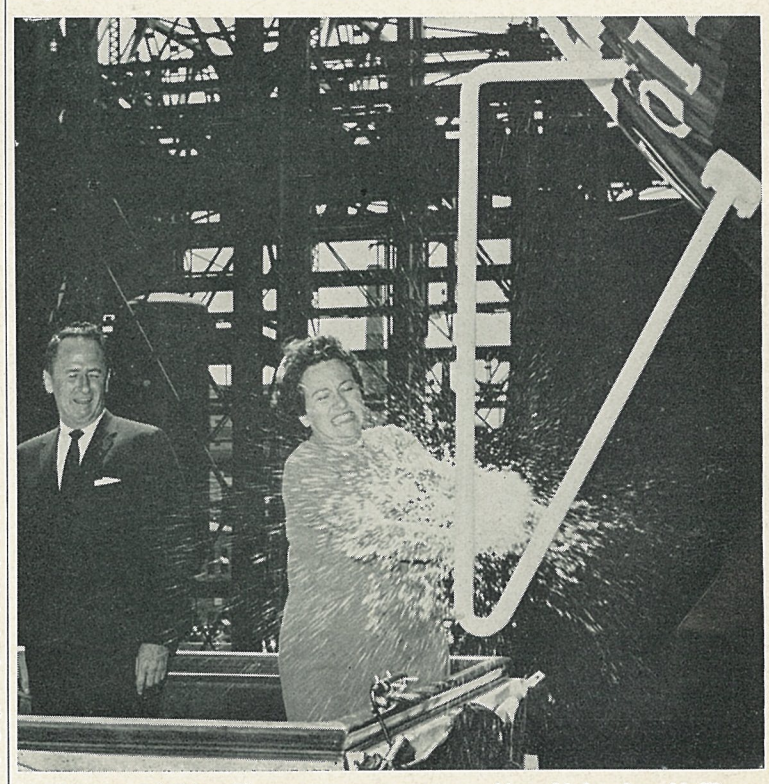
Speaking in noontime launching ceremonies at General Dynamics/Electric Boat, Adm. Robert L. Dennison said "the need for national sea power and superiority on the sea has never been more evident.

"This modern Navy of ours requires the best. The best in ships, aircraft, weapons and personnel," Adm. Dennison declared.

More than 10,000 were on hand as the giant submarine was christened by Mrs. Valentine Hollingsworth Jr., of Beverly, Mass., a great-great-great granddaughter of Alexander Hamilton.

Also participating in the half-hour program were Adm. Edwin J. Rowland, Commandant of the U. S. Coast Guard; Roger Lewis, chairman and president of General Dynamics; and Carleton Shugg, president of Electric Boat.

The 7,000-ton Hamilton, designed to fire the 2,500-mile range Polaris missile, is scheduled for commissioning early next year.



BUBBLE BATH—Champagne sprays as Mrs. Valentine Hollingsworth Jr., great-great-great granddaughter of Alexander Hamilton, christens nation's newest Polaris submarine at General Dynamics/Electric Boat. Behind her is Roger Lewis, Dynamics' president.

Circus Tickets On Sale at $1

GD/Convair and GD/Astro Recreation Associations have bought out the "entire house" for "The Greatest Show on Earth" when the circus comes to Westgate Park next month.

General Dynamics families will be able to see the Sept. 13 performance of Ringling Bros. and Barnum & Bailey Circus at the low price of $1 each—man, woman, or child. Show time is 8 p.m.

Tickets now are on sale at all Astro employee services outlets; at Convair employee services, Bldg. 32, Plant 1; office of Virginia Cannon, Rose Canyon; office of Juanita Jones, GD/Electronics Hancock St. facility.

The over-8,000 tickets will be sold on a first-come, first-served basis.

New spectacles in the 1962 showing include "Around the World in Eight Minutes," said to be a space-age version of Jules Verne's classic. Hundreds of human and animal performers will take part in the extravaganza.

Autumn Big Bear Trip Ahead For Skate Club

An "Autumn Weekend at Big Bear Lake" has been planned by the joint ARA-CRA Ice Skating Club for Sept. 14-15-16 and is open to all Convair, Electronics, and Astronautics folk.

The entire Wawona Lodge at Big Bear Lake has been reserved just for this group. It includes rooms with private bath for two, three, four and five people as well as 10 housekeeping cabins for four and several cabins that will accommodate more.

Those taking part may enjoy ice skating, including a private session Sunday morning, swimming, hiking, dancing, etc.

Gil Hutter, Prophet Co. cafeteria manager at Astro, will again serve as chef. He and his crews will serve two breakfasts, a barbecue dinner, a poolside buffet on Saturday and Sunday afternoon snacks.

Total cost per person for lodging and five meals is only $11.

Individuals will provide their own transportation to and from the popular mountain resort.

This trip is the seventh made to the locale and the third in which Wawona Lodge has been booked exclusively.

Reservations are now being accepted by employee services offices at Plant 1 and at Astronautics. First-come, first-served arrangements will prevail and no cancellations will be possible after Sept. 7.

Children See 'Wizard of Oz'

Sixty youngsters from Nazareth House thrilled and chilled along with Dorothy amidst her hectic experiences in the "Wizard of Oz," as a treat from General Dynamics/Convair Management Club.

The children, 6 to 14 years old, occupied a special block of seats purchased for them by the GD/Convair club at the Aug. 17 Starlight performance. M. L. Sweeney, club treasurer, and his wife were instrumental in arranging the highlight for the children, who, otherwise, would have been unable to attend the spectacular.

Assists came from the Starlight Opera which gave the GD/Convair Management Club reduced rates for the seats and from the San Diego Transit Co. which furnished transportation for just the cost of a driver.

Children also were treated to pop, popcorn and all the extras at their special "night out."

'Lost and Found' Files Bulging

Contact lenses in a black case, found in Bldg. 2, Plant 2, are among items currently being held in bulging "lost and found" files at General Dynamics/Astronautics.

Owner of the contacts may claim them by calling at employee services, Bldg. 28, Plant 2, or by calling Helen Johnson, ext. 1182, there.

Astro employee services at the main plant, as well as Plant 2, reports numerous items being held for employees. For instance, there is a copy of a Navy discharge, a sport coat, pocket Bible and several hundred keys and pairs of glasses waiting to be claimed.

Employees, as well as industrial security personnel, who receive lost items automatically send them on to employee services for safe keeping. Those who have lost items may call at Bldg. 8 (cafeteria) at the main plant or Bldg. 28 (cafeteria) at Plant 2.

Salvage Schedule Set For September

Salvage yards at GD/Convair and GD/Astro will be closed this coming Saturday (Sept. 1) because of the Labor Day weekend.

Both yards will hold employee sales, 8 a.m. until noon, under their normal alternating Saturday schedule for the balance of the month.

September schedule: GD/Astro —Sept. 8, 22; GD/Convair—Sept. 15, 29.

BIG TREAT—Bright-eyed children of Nazareth House beam appreciation for GD/Convair Management Club-sponsored night at "Wizard of Oz." Giving invitation are Al Fink, club prexy, and Larry Sweeney, treasurer. Standing beside Sister Mary Clement are Jean Glen of Starlight Opera and Mrs. Sweeney, in white blouse. —Photo by Sentinel photographer Ken Davies.

A. W. Carrolls Top CRA-ARA Dahlia Show

Mr. and Mrs. A. W. Carroll of GD/Astro swept the field with their dahlia entries at the annual CRA-ARA Summer Show which attracted a crowd of 1,500 spectators to the Floral Association Bldg. Aug. 12.

CRA Commissioner E. L. Zimmerman and ARA Commissioner Everett Henderson said that it was one of the most successful shows ever sponsored by the divisions' garden clubs. Over 250 entries were on display in the six categories, including dahlias, citrus and deciduous fruits, vegetables, arrangements, corsages, children's division.

The Carrolls won top honors for best dahlia in the show, as well as largest dahlia. LaVonne Splinter took award for smallest dahlia.

Other best-of-show entries were: C. H. Splinter, best ball dahlia; Jean Henderson, best deciduous fruit (peaches); Splinter, best citrus fruit (oranges); LaVonne Splinter, best vegetable (tomatoes); Evelyn Finley, best arrangement; Rose Hart, best corsage; Janice Zimmerman, best child's entry.

Judging dahlias were James E. Kirk, Dr. W. Troxell, Larry Sisk. Judges for fruits and vegetables were Mrs. Kirk, Mrs. Troxell, and Mrs. Sisk.

Blue ribbon winners were: Dahlias (over 4-in. diameter)—Red, LaVonne Splinter; yellow, Mr. and Mrs. A. W. Carroll; purple, Henry S. Boyd; pink, E. L. Zimmerman; white, C. H. Splinter; orange, Mr. and Mrs. A. W. Carroll; lavender, Mr. and Mrs. J. L. Bores; blends, LaVonne Splinter; bi-color, Evelyn Finley; varigated, Mr. and Mrs. A. W. Carroll.

Cactus or Semi-Cactus (over 4-in. diameter)—Red, LaVonne Splinter; yellow, Frank Cox; pink, C. H. Splinter; white, Dennis Zimmerman; orange, Mr. and Mrs. A. W. Carroll; blend, Mrs. A. E. Hornsby; bi-color, Mr. and Mrs. A. W. Carroll; varigated, Mr. and Mrs. Carroll.

Three Pompons (2-in. diameter or less)—Red, C. H. Splinter; yellow, C. H. Splinter; pink, Mr. and Mrs. A. W. Carroll; purple, C. H. Splinter; white, Mr. and Mrs. A. W. Carroll; lavender, C. H. Splinter; blend, Mr. and Mrs. A. W. Carroll; orange, E. L. Zimmerman.

Three Miniatures or Balls (2-4-in. diameter)—Red, Mr. and Mrs. A. W. Carroll; purple, C. H. Splinter; blend. Mr. and Mrs. A. W. Carroll; varigated and orange, C. H. Splinter.

Collarettes and Novelties—E. L. Zimmerman.

Deciduous Fruit—Plums, E. L. Zimmerman; apples, A. Hornsby; peaches, Jean Henderson; grapes, Mrs. J. Barton.

Citrus Fruit—Avocadoes, Walter McVay; lemons, Henry Boyd; oranges, C. H. Splinter; grapefruit, Mrs. J. Barton.

Vegetables — Legumes (beans) and roots (radishes), Mike Alianelli; leaves (parsley), Mrs. J. Barton; tomatoes, LaVonne Splinter; peppers and corn, Mike Alianelli; melons, H. S. Boyd.

Arrangements — Miniatures, Margaret Boyd; small, Grace Zimmerman; medium, Evelyn Finley; large, Mrs. Arnold Carroll; dry arrangement, Rose Hart.

Corsages—Orchids, Rose Hart; roses, Rose Hart; other cut flowers, Rose Hart and E. L. Zimmerman.

Children's Division — Janice Zimmerman and Sherrie Files.

Self-Improvement Class Scheduled

Selp-improvement classes for women and teen-age girls will again be sponsored by GD/Astro Recreation Association with opening sessions in the nine-week series slated for early September.

Teen-age classes will be held Mondays, 5:15 to 7:15 p.m., with the adult course meeting Tuesdays, 7 to 9 p.m. All classes will be held in ARA Clubhouse with Sherry Miller, professional model and charm school instructor, in charge.

The adult class first meets Sept. 11, following opening of the teen-age series Sept. 10.

Cost of the course (18-hours' instruction) is $25 per person.

Additional information is available from ARA Headquarters, ext. 1111, where class registration is being coordinated.

Single Adults Club Plans Dance in Patio

Members of the ARA-sponsored Single Adults Club will hold a patio dance from 8:30 p.m. until midnight Sept. 7 at the ARA Picnic Pavilion, ARA Recreation Area.

Live music will be presented for dancing. Beer and snacks will be served. Cost is 50 cents per person. GD/Astro identification cards are required for admittance.

National Horse Show Set For Long Weekend

ARA Riding Club will conduct a National Horse Show in its Recreation Area arena Labor Day weekend (Sept. 1, 2 and 3).

The event is expected to draw top horsemen from the Southern California area to compete in more than 70 scheduled classes. The show is sanctioned by America Horse Shows Association.

Saturday's schedule includes hunters and jumpers, as well as gaited saddle horses. On Sunday, an approved Quarter Horse Show will be featured, with western pleasure horses and trail mounts to be shown Monday.

Judges are Eric Atterbury of Del Mar, "Sandy" Sanders of Sun Valley, and Clyde Kennedy of Lancaster. AHSA Steward is Mrs. William Wier of Phoenix, Ariz.

Spectators are welcome at all events which will begin about 9 a.m. daily. No admission will be charged.

John Harrison of the ARA club is show director, and C. Ward Jaques, is show manager, assisted by Don Brannon and Carol Jackson. William Penn will be assisted by Ardelle Sorkness as secretary. Art Smith is ARA commissioner and Les Allen is Riding Club president.

Comedy on Missile Business Selected By Astro Players

"Roman Candle" by Sidney Sheldon has been selected by the ARA-sponsored Astro Players for presentation in November.

This fast-moving comedy deals with the trials and tribulations of the missile business and is expected to be especially appealing to GD/Astro audiences. Dick Elbe, one of the stars of the Player's "Wake Up Darling," will direct.

Elbe has set tryouts for 7:30 p.m. on Sept. 20 and 21 in the drama workshop, ARA Clubhouse.

Meanwhile, ARA members interested in dramatic work are invited to take part in weekly workshop meetings held at 7:30 p.m. each Wednesday in the drama workshop.

Annual Tehachapi Roundup Attracts Astro Rockhounds

Rockhounds from GD/Astronautics will hold their first field trip of the 1962-63 "season" over the long Labor Day weekend, traveling to take part in the Tehachapi Rockhound Roundup.

Citizens of Tehachapi, located on Highway 466 about 15 miles west of Mojave, sponsor the event each year. It includes dances, shows, mine tours and prison tours. Collecting trips will be conducted to Horse and O'Brien Canyons and other popular points.

Astro Rockhounds will meet at Tehachapi Saturday morning and proceed to a campsite at the 4,000-foot level.

Persons interested in taking part may contact Joe Joneikis, ext. 3413, for information.

Openings Available In Wives Bowling

Initial response to a call for Astronautics wives to take part in a special winter bowling league opening Sept. 17 has been good, but additional keglers are needed to round out the loop.

Ann Ragusa, Wives Auxiliary bowling director, said this week the league will meet at 9:30 a.m. each Monday at Clairemont Bowl.

Both teams and individuals are invited to take part and no previous bowling experience is required. Mothers of pre-school children may take advantage of a free nursery during the bowling period.

Team members or substitutes may contact Ann at BR-3-6264.

Last Call Issued For Dodger Jaunt

Last call for an ARA-sponsored group bus trip to see the Sept. 7 baseball game between the Los Angeles Dodgers and the Pittsburgh Pirates was issued today.

Tickets are now on sale at employee services for $6.50 each. They include round-trip bus transporation to Los Angeles and Chavez Ravine, choice reserved seats and a box lunch and beverage.

Buses will depart Astro parking lots no later than 5 p.m. and go directly to the ball park, returning immediately after the game.

Some 200 tickets were acquired by ARA and less than 80 are now available on a first-come, first-served basis.

Tennis Tourney Dates Chosen In Sept., Oct.

Entries are now being accepted for the Sixth Annual ARA Plant Tennis Championship to be played Sept. 29-30 and Oct. 6-7 at Morley Field.

Men's and women's singles, mixed doubles and men's doubles events will be staged. In the men's singles, a consolation event is scheduled.

All Astro employees and their families are invited to take part. Trophies will go to the winner and runner-up in each event.

Accepting entries are Carl Shuler, ext. 3115, and Ed Bennett, ext. 3088. Information may be obtained from ARA Commissioner Ben Cendali at Sycamore Canyon, exts. 58 and 84.

Beginner Sq. Dance Class Announced, To Begin Sept. 11

While the Astronauts, ARA-sponsored square dance group at GD/Astronautics, dances twice a week, newcomers or beginners are accepted only twice a year. One of those times is at hand.

A new square dance class just for beginners opens Sept. 11. New students will be accepted Sept. 11, Sept. 18 and Sept. 25. After that time no additional students will be accepted until a new class convenes in the spring.

Beginners dance at 8 p.m. (to 10 p.m.) each Tuesday night in the ARA Clubhouse. Under the direction of veteran instructors Dot and Van Vander Walker, newcomers are first walked through square dance steps, then taught the more intricate movements that make up finished dances. Majority of those taking part will be people who have never square danced before.

More experienced dancers are invited to join the intermediate and advanced Astronauts who dance from 8 until 10 p.m. each Thursday at ARA Clubhouse.

"We would like to have a good turnout of beginners and also extend a personal welcome to former students who may have dropped out of dancing before they finished the beginner's class," said Marty Stutz, ARA commissioner.

Instruction costs are nominal and are paid by the week.

Zorrilla Takes First In Scavenger Hunt

Jorge Zorrilla paced members of Astro Divers taking part in an Aug. 11 "scavenger hunt" dive at La Jolla Cove.

Second place went to Bob Nicholas, with Dave Carter, son of Bill Carter, and Herman Reickert tieing for third.

Object of the dive was to bring up a set number of abalone, starfish, shells, snails, limpets, sea urchins, etc.

September will find the group diving at Bird Rock, La Jolla.

GOLF FINALISTS—These Astro golfers came down to the wire in 1962 championships at Fletcher Hills. (1) Kay Stites, handicapper, Jack Maughmer, Ernie Stuchly. (2) Champion Mac McCord is at right, with Alex Bezverkov, Jack Weaver, Dick Tobias (ARA commissioner), Ray Mendoza. (3) Dick Torrence, Charles Walton, Hal Heist, R. C. Christopher. (4) Jim Rose, Henrik Eskesen, F. L. Patton, Lou Hungate. (5) Harry Bodwell, Joe Pearl. (6) C. N. Bagaloff, Jim Long. (7) Lee Quinn, Hank Gallant. (8) Mat Fuller, Ed Swor. (9) Tom Lazos, Harry Fritz. Four of finals matches required extra holes to decide. Field of 117 competed.

ARA Calendar

(GD/Astronautics Recreation Association has some 40 activities in operation for employees. For information call ARA Headquarters, ext. 1111.)

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ARCHAEOLOGY — Meeting 7:30 p.m. today (Aug. 29), ARA Clubhouse.

ASTROLENS — No meeting Sept. 2. Meetings resume Sept. 16 with quarterly contest (open subject).

ASTRO MOTORS — Meeting 7:30 p.m., Sept. 5, ARA Clubhouse.

BOWLING — Winter leagues open third week of September. Applications available employee services for individuals, teams or leagues.

ICE SKATING—Reservations at employee services for weekend at Big Bear Lake Sept. 14, 15, 16.

RIDING — National Horse Show, ARA Arena, Sept. 1, 2, 3. No admission for spectators.

ROCKHOUNDS — Labor Day weekend trip to Tehachapi Rockhound Roundup, Sept. 1, 2, 3.

SINGLES CLUB—Patio dance Sept. 7, ARA Area. GD/Astro identification card required. Dancing to live music, 8:30 p.m. to midnight.

SQUARE DANCING — Beginners' class opens Sept. 11, 8 p.m., ARA Clubhouse. Squares, couples and individuals welcome.

TEEN-AGERS—Dance 7:30 to 11 p.m., Sept. 1, ARA Clubhouse. One guest couple per membership. Admission, 25 cents per person.

Kart Racers Meet Sept. 4

With prospects of a specially-built race track in mind, Astronautics employees interested in karting or go-kart racing will hold an organizational meeting at 7:30 p.m., Sept. 4, in ARA Clubhouse.

Interest in adding a go-kart racing course in ARA Recreation Area has progressed to the point that plans have been drawn. And ARA has been receptive to the idea of adding the track, if sufficient interest is shown.

Leaders of the proposed activity, once sponsored by ARA with racing on Astro parking lots, indicate it is a family sport, open to men, women and youngsters. Rigid safety rules, plus open days for track use, are planned.

Employees with an interest in the program, whether they own a racing vehicle or not, are invited to attend.

Sports & Recreation

McCord Edges Fletcher To Win Plant Golf Title

Mac McCord, veteran ARA competitor, put together a one-up victory over Jack Weaver at Fletcher Hills Aug. 19 to win his first ARA Plant Championship golf tournament.

In this 5th annual affair, McCord worked his way methodically past Jack Ross, Harry Richards and Ray Mendoza to reach the finals. McCord is from Dept. 320-1, while Weaver is in Dept. 549-8.

Mendoza (Dept. 130-5) won in 19 holes over Alex Bezverkov (Dept. 565-4) for consolation honors in the championship flight.

The four-day tournament drew 117 competitors and saw three other matches in the championship round require extra holes.

C. N. Bagaloff took a 5-4 victory over Jim Long in the first flight, while Jack Maughmer earned consolation honors. The 2nd flight found Harry Bodwell winning over Joe Pearl in 19 holes with Lou de Belloy as consolation winner.

Mat Fuller emerged as 3rd flight winner over Ed Swor in a match that lasted 21 holes. Charles Adkison was consolation winner. Dick Torrence won a 3-2 4th flight final from Charlie Walton, while Hal Heist grabbed consolation honors.

Hank Gallant won 2-1 over Lee Quinn, the only woman finalist, with Lou Marine as consolation winner in the 5th flight. Harry Fritz required two extra holes to down Tom Lazos in the 6th flight that saw Don Leggott as consolation winner.

Jim Rose was the 7th flight victor with a 2-1 triumph over Henrik Eskesen. F. L. Patton took consolation honors.

Winter Bowl Leagues To Start Rolling Soon

Astronautics Recreation Association's largest activity—bowling—faces its busiest season—winter—this week.

Major ARA-sponsored leagues begin rolling at San Diego County locations for the most part during the third week of September. Applications are now available through employee services offices for teams or individuals desiring to take part.

As in the past, the bulk of Astro leagues will gather at Clairemont Bowl. Monday night will find a 700 mixed handicap and 860 men's scratch league in action. Both 675 and 725 mixed handicap leagues meet on Tuesdays along with a 730-750 major/minor handicap and 800 men's scratch loop. There is no bowling on Wednesday at this location. A 700 mixed handicap, 750 major/minor scratch, a 750-775 major and an Air Force loop meets on Thursday. Both 700 and 750 mixed handicap loops and a 650 women's handicap league meets Friday.

Swing shifters take over Clairemont at 1:45 a.m. Saturday.

Escondido Bowl will have a 575 mixed handicap league on Wednesday.

Frontier Bowl features a Wednesday 750 mixed handicap and a Friday 590 mixed scratch league.

Parkway Bowl will have 700 mixed handicap leagues rolling on Tuesday, Thursday and Friday.

Poway Bowl will stage a 575 mixed handicap league on Wednesday.

A Wives Auxiliary loop meets at 9:30 a.m. Monday (beginning Sept. 17). Reservations in this league may be made by calling Ann Ragusa at BR-3-6264.

Additional information is available at ARA ext. 1111.

Show Cancelled Due To Health of Star

Astronautics Recreation Association has been forced to cancel its plans for an all-professional cast presenting "The Tender Trap" Sept. 9.

Eddie Bracken, selected to star in the show, will be unable to appear due to illness.

ARA Baseball Nine Wins 10 Straight, Undefeated

Big Mike Smith banged out a double, two singles and two homers Aug. 19 to pace ARA's baseball team to an 8-3 victory over Van and Storage and at least a share of the league crown.

The win was the 10th straight for the Astro nine in the summer Exhibition League.

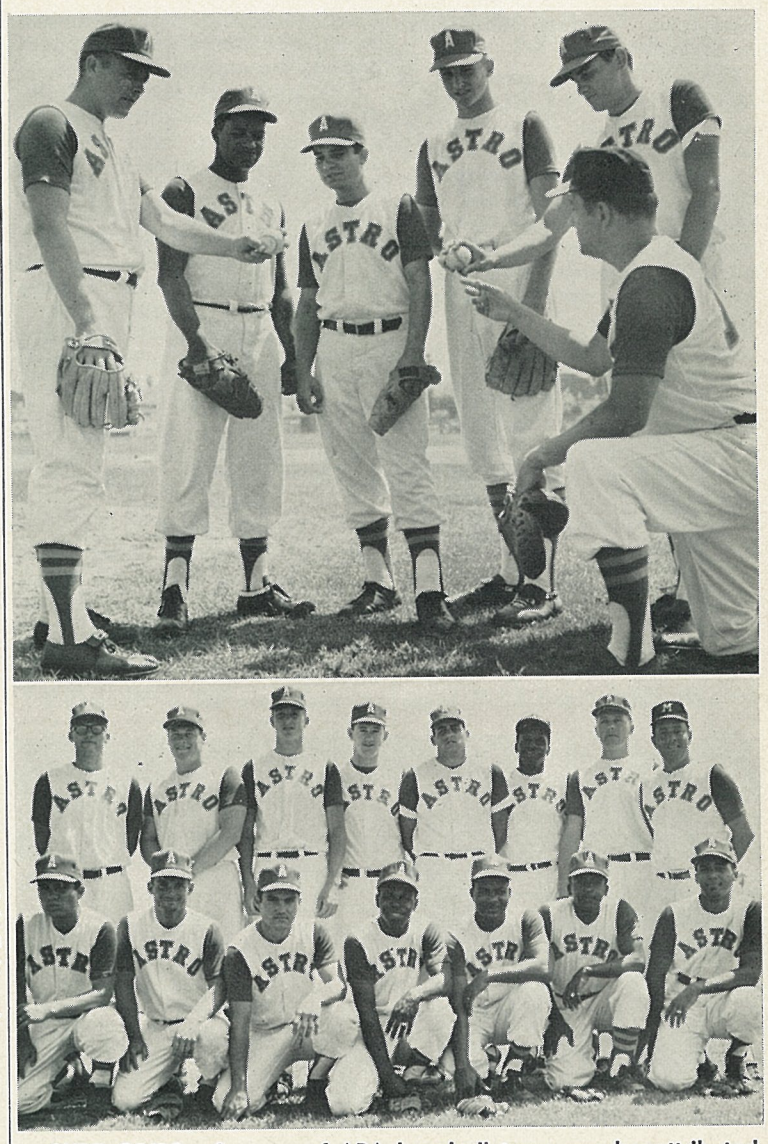
Only a game last Sunday (Aug. 26) with Princess Homes stood between Astro and a league championship without a play-off. However, a loss by Astro and a victory on the part of New Linen Supply would send the two teams into a play-off.

Smith's circuit clouts came in the 4th and 5th innings when Astro hitters bunched 10 hits to score seven runs in the 8-3 Van and Storage tilt.

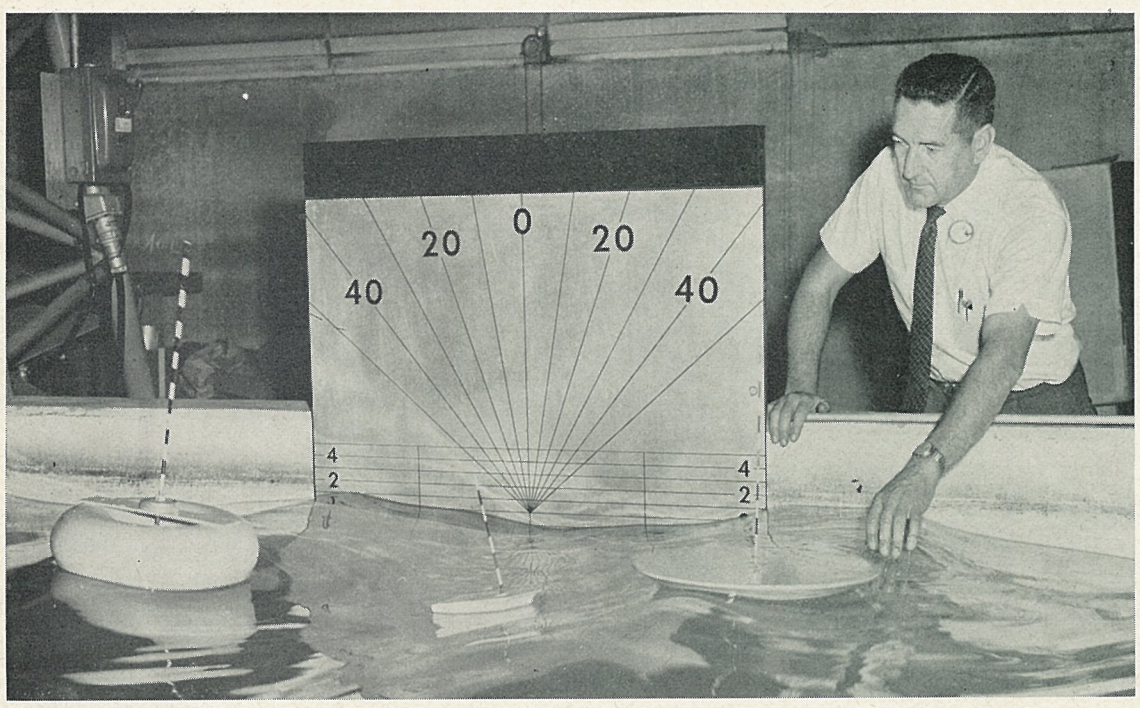
Mound chores were handled by Bruce McIntyre, Ron Dixon and Hilbert Murillo.

Barring a play-off series, the summer season has ended for the Astro nine. Manager Don Sanchez indicated this week plans will be announced soon for fielding a team in the regular San Diego winter baseball loop. Loop play begins in late October or early November.

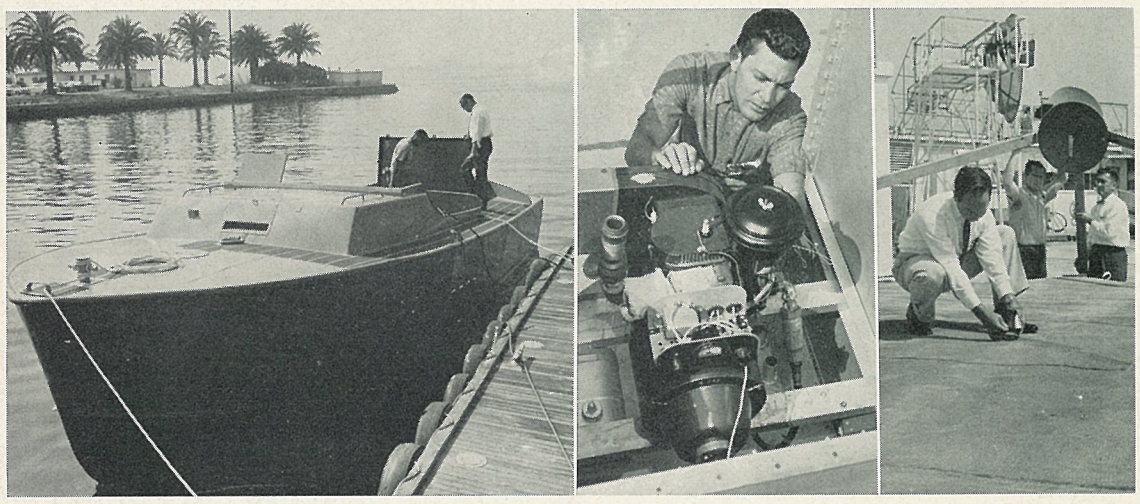
Since taking over at mid-point of the last winter loop, Sanchez' team has won 25 and lost only one tilt.



SURE GRIPS—Success of ARA baseball team can be attributed, in part, to fine mound staff. In top photo Manager Don Sanchez, kneeling, talks over grips with, from left, Bill Murphy, R. Wells, Bob Lasoya, Ron Dixon and Bruce McIntyre. Below, standing from left, Dave Walden, Mike Smith, Ron Dixon, Dick Schoefer, Bruce McIntyre, Garfield Winters, Murphy, and Manager Sanchez; kneeling, Lasoya, Charles Vanderhoff, Marty Martinez, Charles Johnson, Wells, Jerry Goins and Gary Ewing. Not shown, Norman Cantrell and Hilbert Murillo.



BOUNCING BUOYS—S. E. Sowers, GD/Convair instrumentation engineer, measures angle of mast on toy-like models of buoys under test for stability and mooring strength requirements under severe storm conditions in division's towing basin.



DEEP SEA HORSE—At left, Bob Devereux watches Ed Ingold prepare to shift ballast in LCP readied as test bed for ocean-going data transmitting power plant. In center, Larry Turchick works on engine/generator unit in experimental yard; at right, Jim Lack positions 100 to 1 scale antenna on ground screen atop Bldg. 51 as Jack Heming and Ken Morgan hoist feed antenna.

Convair Conducts Ocean Data Study

A bright orange craft will be moving out to sea within the next few days as an 18,000-lb. test bed in oceanographic studies now under way at General Dynamics/Convair.

The 36-ft. all-steel LCP (Landing Craft Personnel), topped with a high white snorkel, or antenna mast, will act as a platform for a power plant unit as one phase in the development of a remote-control broadcasting system to reveal secrets of the deep.

The contract, awarded GD/Convair by the Office of Naval Research, Washington, D. C., came as a result of an unsolicited proposal submitted by the division for the development of a system capable of transmitting data about oceanographic and weather conditions in deep waters from unmanned buoys to shore stations.

Present contract is a follow-on to an initial ocean data processing development contract completed the first part of this year. Current studies will be concluded by February of 1963, said N. W. Reed, flight test group engineer. Reed and his group of instrumentation experts are responsible for the project under overall direction of V. J. Schack. Robert Devereux is principal investigator.

"Such information as air and water temperature, water currents, acoustic measurements, will prove invaluable to oceanographers and meteorologists," explained Devereux.

"In fact, such a transmission system has untold possibilities. Its application could lead eventually to wide use in the science of the seas.

"And, with the development of a workable system, GD/Convair, as a leader in this little-explored field, will be equipped to produce both data transmission systems and buoys."

Information would be stored on tape in the instrumentation package aboard the buoys. It would be transmitted by coded signals on assigned frequencies upon command from shore stations.

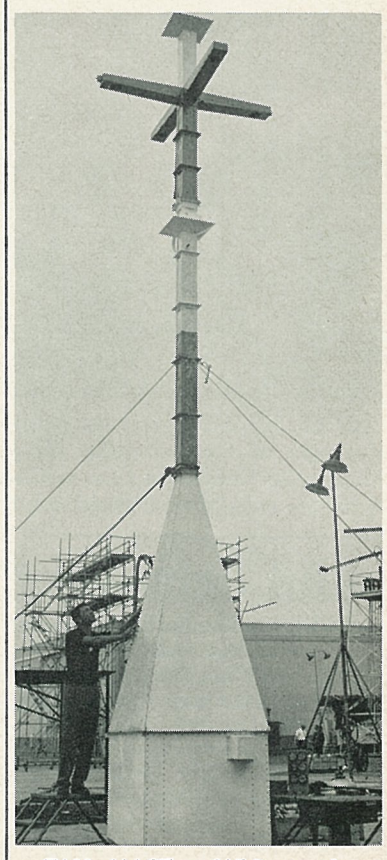
Now, flight test instrumentation engineers in the GD/Convair oceanography group are in the midst of testing buoys, antennas, power plant, instrumentation to arrive at the best possible transmission vehicle—one that could withstand 40-foot waves, 10-knot currents, and 150-knot winds while anchored in depths exceeding 20,000 feet.

Models of at least eight different types of buoys, some of GD/Convair design and modification, have been under checkout in the division towing basin. Here, all—of shapes ranging from doughnut or pancake, spar, boat-type—were towed at low speeds to check their reactions during simulated severe storm conditions to determine strength of mooring requirements. Other tests held the bobbing yellow toy-like buoys (from 1/10th to 1/40th scale) in front of a grid board while motion picture cameras ground out film capturing angle of the mast, or antenna, and wave height and slope.

Scale model antennas have been in omni-directional tests on the Bldg. 51 antenna range for amount of power, radiation patterns, and proper transmission in rolling waves.

A full-scale radio frequency link transmission test over 2,200 nautical miles of open water is planned within the next few months with GD/Convair engineers transmitting to a temporary receiving station in Hawaii.

The Navy LCP test bed, loaned to GD/Convair by ONR with the assistance of BUWEPSREP Office and renovated in experimental department, will be moored about a mile off shore from Mission Beach within the next week. It will be left there for the next three months during testing of a propane-fueled electric power plant which, it is hoped, will run without maintenance for months.



TALL MAST — White and orange snorkel tops structure (30 ft. high) to go on test craft as it takes to sea. It contains antenna, air intake for engine unit housed below.

GD/Convair flight test engineers will visit the boat two and three times a week, and telemetered data will be transmitted from boat to ground station at GD/Convair periodically.

"We received fine cooperation from both the Port of San Diego and the Navy in helping us get the boat into the water at the B St. pier and towing it to our ramp facility where instrumentation and the snorkel are being installed," said Reed.

"The Coast Guard, city police department, aquatic division of the city park and recreation department are going to keep an eye on our boat to help protect it from the curious—both seagulls and humans."

Six Divisions Send ASW Experts to Conference

More than half-a-dozen anti-submarine warfare programs of an inter-divisional nature are now being pursued by General Dynamics Corporation, it was reported at a meeting of the Anti-Submarine Warfare Committee in Rochester Aug. 6-7.

Charles F. Horne, president of GD/Electronics and GD/Pomona and chairman of the committee, presided. Representatives from six divisions and the corporate offices in Washington and New York attended. Victor Savchuk, executive secretary of the committee, arranged the program for the host division—GD/Electronics-Rochester.

Savchuk reported that the various divisions are contributing their specialized technology toward development of more effective ASW systems. The half dozen inter-divisional programs are in addition to numerous projects being conducted individually by divisions.

At ASW committee meetings GD/Convair provides information on aircraft and hydrofoils, Canadair on airplanes and ocean surveillance systems, and GD/Pomona on missiles and ASW weapon delivery systems. General Atomic is assisting with deep submergence unattended nuclear power possibilities, GD/Electric Boat with launching platforms and ASW submarines and GD/Electronics-Rochester with airborne electronics, underwater transducers and sonar devices.

The group visited SUTEC, underwater test and evaluation facility on Seneca Lake, and saw operations of the sonar test barge. George Sefcik, of GD/Electric Boat at SUTEC, discussed proposed propulsion modifications.

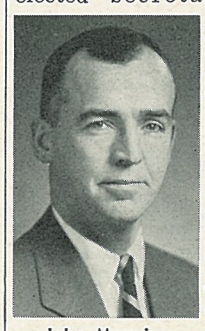
Attending the meeting besides Horne and Savchuk were: Thomas B. Pearson, General Atomic; George Schillreff, GD/Pomona; Hubert E. Brooke, GD/Convair; Dr. Herman E. Sheets and William L. Pryor, GD/Electric Boat; Robert L. Deans, Canadair; Ernest D. Lundell, Washington; and Robert J. Lutz, New York.

TOP TOASTMASTER

Cyril C. Campbell (Dept. 146-5) of General Dynamics/Astronautics recently represented 46 San Diego and Imperial County Toastmasters' Clubs at the 31st annual convention of Toastmasters International at Minneapolis.

John Maguire New Secretary Of Dynamics

John P. Maguire Jr., has been elected secretary of General Dynamics Corporation, Roger Lewis, president, announced last week.

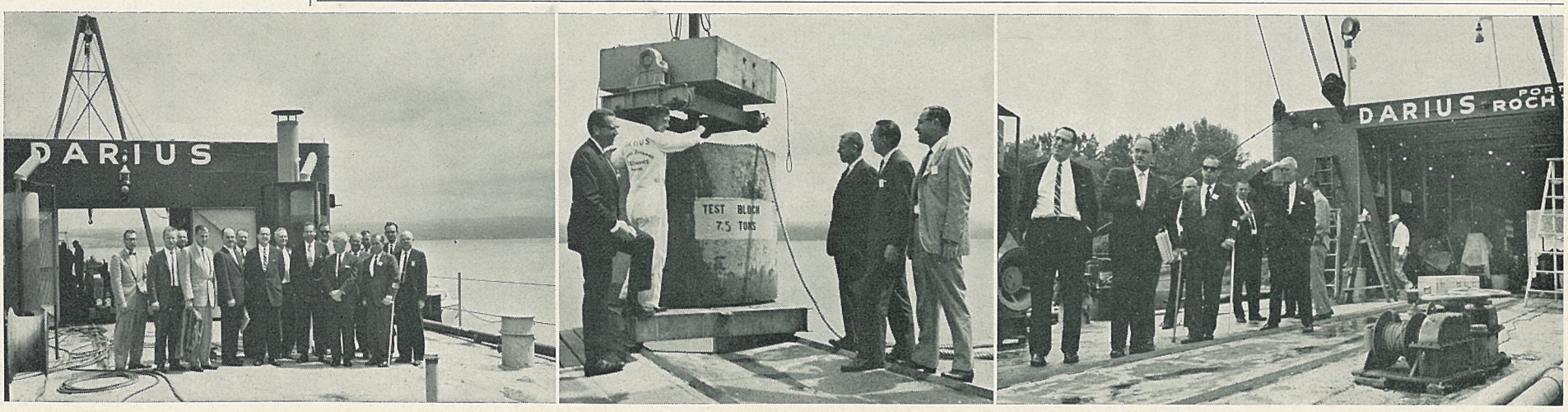


John Maguire

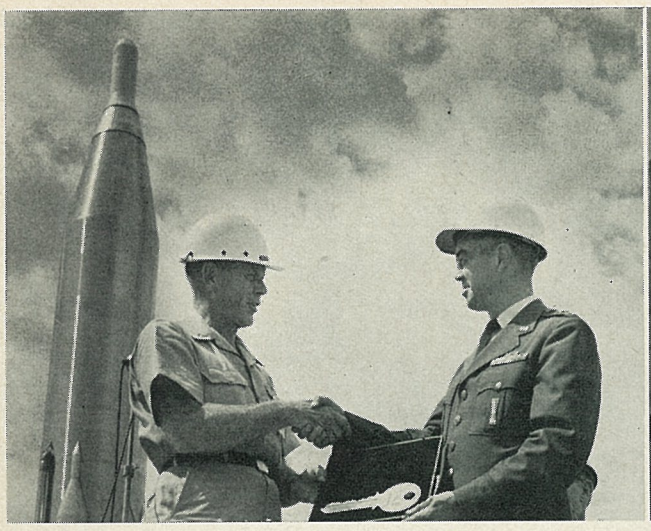
Maguire will assume his new duties Sept. 1, succeeding Allen D. Marshall who has been elected president and chief executive officer of United Student Aid Funds, Inc.

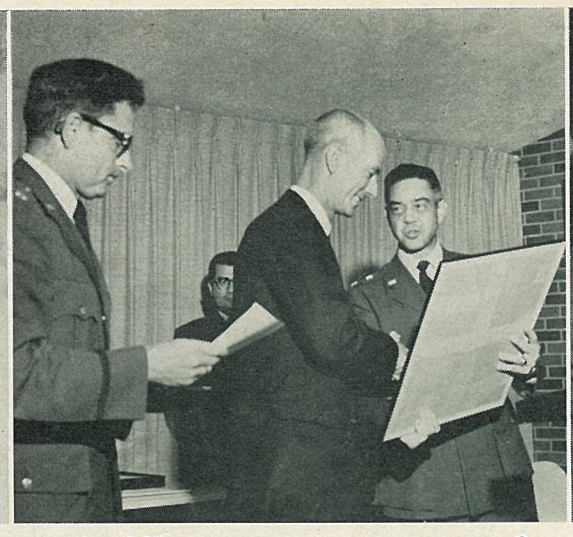
Maguire had been secretary and general counsel of Texas Butadiene and Chemical Corporation since 1960. During the six preceding years, he served as assistant counsel of General Dynamics.

Born in New Britain, Conn., in 1917, Maguire was awarded a degree in business administration from Babson Institute in 1936, an A.B. from Princeton University in 1941 and an LL.B. from Yale Law School in 1943.



ON BOARD DARIUS—Members of General Dynamics ASW Committee conferred at Rochester, N.Y., recently and inspected GD/Electronics' research barge, Darius, on Seneca Lake. At right, watching crane demonstration, are, from left: Harry B. Miller, GD/E, George Sefcik, GD/Electric Boat, Thomas Pearson, General Atomic, Charles F. Horne, president of GD/E and GD/Pomona. In center, Billy Forbes of Darius crew guides test block while Harry Miller explains barge's capability to Donald Nichols, GD/E, Robert Lutz, corporate office, H. E. Brooke, GD/Convair. At left is group photo of committee.





DELIVERY—At left, Maj. Gen. D. R. Ostrander, vice commander, BSD, turns over entire Schilling facility to SAC. Accepting is Col. J. W. Hayes Jr., commander, 22nd Strategic Aerospace Division. In center: C. R. Jackman, GD/Astro operations manager, accepts Commander's Award from General Ostrander for himself and for Paul Gordon and Al Goehle. At right: P. M. Prophett, GD/Astro base activation director, greets Col. A. W. Cruikshank Jr., SATAF commander.

GENERAL DYNAMICS

NEWS

ASTRONAUTICS EDITION

(OFF-SITE)

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Dept. 733 Takes Lead in Cutting Utility Costs

Among departments taking leading roles in an effort to reduce General Dynamics/Astronautics utility costs is processing (Dept. 733).

To date, changes made in this department have resulted in reducing gas, water and electricity by some $470 monthly or over $5,635 annually.

Astronautics is in the midst of a concentrated drive to chop at least $200,000 off utility costs now ranging upwards of a million dollars each year **(General Dynamics NEWS, July 18).**

(Utilities include gas, water, electricity, compressed air and processing systems.)

Processing operates 36 tanks ranging from 600 to 2,500 gallons each in capacity. They hold liquids like oakite, acid, rust strip, trichlorethylene, hot and cold rinse water and de-ionized water used on two shifts for conditioning of metals, parts and assemblies.

"Mel Goodhart (general foreman) and his people have always been extremely cost conscious in their operations," said W. J. Stanley, manager of plant engineering and leader of the current drive. "However, over the past two months they have doubled their efforts and come up with even more savings. Their efforts are highly commendable."

Savings realized, for the most part, stem from reduced flows of tank liquids and the shutting down of all processing systems not actually being used.

Previously, it was often necessary to operate some tanks around the clock since specific temperature levels had to be reached and maintained for processing.

Now processing and plant engineering have worked out a system which allows third-shift employees of the latter group to turn on tanks early enough to reach operating conditions by the time first shift processing employees report for work.

This simple routine eliminated some overnight operations and in a few cases weekend operations.

Other efforts within processing involve close study of operations to curtail or eliminate waste of utilities.

Jim Dallas, maintenance foreman, is coordinating the division-wide utility reduction effort. Departments or individuals with ideas that may help can reach him at ext. 2140.

WELL DONE—Mortimer Rosenbaum, GD/Astro executive vice president, accepts thanks from Maj. Gen. D. R. Ostrander, BSD vice commander, on turn-over of Schilling facilities. At right is SATAF Commander, Col. A. W. Cruikshank Jr.

GD/Astro Trains Corps Of Volunteer Firemen

As a prelude to National Fire Prevention Week (Oct. 7-13), GD/Astronautics recently held the first training session for a corps of auxiliary firemen established under the disaster control organization.

A total of 50 employees, mostly supervisory personnel, will receive training. The first session outlined the program and included showing of a film prepared by National Fire Protection Association.

Organized in six-man teams, auxiliary firemen will later be instructed in operation and use of all types of fire extinguishers and hoses, and learn to assist fire department personnel in operation of other apparatus.

Fire fighting instruction is directed by Fire Chief A. C. Anderson, assisted by other fire department officers. The total disaster control organization at GD/Astro is coordinated by A. M. Young.

As another phase of disaster control training, a rescue team is being organized under Ken Arbo of plant engineering.

Crane Grunts Under Big Load As Storage Magazine Moved

Hefty moving project faced crews summoned by GD/Astro plant engineering (Dept. 250-2) in process of clearing an area east of the main plant for a special installation.

Confronting movers was an explosive storage magazine of concrete block construction on a heavy concrete base, roughly 10 by 20-feet in area. Estimated weight of the structure, used to store explosive bolts and similar items, was 40 tons.

The move, in which a mobile crane was used to load and unload the structure from a 24-wheeled trailer, shifted the building several hundred yards.

Overseeing the operation for plant engineering were Don Vockrodt and D. L. Herzer.

Twelve Atlas Sites Accepted

SCHILLING AFB—Twelve additional operational Atlas launch sites were turned over to the Strategic Air Command here Sept. 13, marking the first delivery of Series "F" or silo installations.

Thus, in just 10 months General Dynamics/Astronautics activation forces have added to SAC's deterrent forces 39 Atlas launch complexes, plus their accompanying service facilities!

Included in the total were Series "E" or semi-hard launch facilities located at Fairchild AFB, Wash., Forbes AFB, Kan., and Warren AFB, Wyo. Each has nine launch sites.

Scheduled for completion this year are additional silo sites at Lincoln AFB, Neb., Altus AFB, Okla., Dyess AFB, Tex., Walker AFB, N. M., and Plattsburgh AFB, N. Y.

Astronautics activation work got under way March 24, 1961, when the initial site passed from construction to installation and checkout phases. Others followed through delivery of the last site to Astro on Aug. 11, 1961. The initial Atlas "F" arrived here July 24, 1961. The first of 12 launch sites was turned over to SAC June 4, 1962.

Ceremonies here Sept. 12-13 marked completion of the entire facility to support the Atlas here. Invited guests included news media representatives (about 60) from throughout the nation.

Mortimer Rosenbaum, GD/Astro executive vice president; P. M. Prophett, director of base activation; and C. R. Jackman, GD/Astro operations manager here, represented Astronautics.

Air Force participants included Maj. Gen. D. R. Ostrander, vice commander, BSD; Col. J. W. Hayes Jr., commander of SAC's 22nd Strategic Aerospace Division; Col. A. W. Cruikshank Jr., SATAF commander; Col. E. F. Arnold, commander, 310th Strategic Aerospace Wing; Col. C. K. Agan, commander, 550th Strategic Missile Squadron; and Cols. J. Harris and M. K. Andresen, representing BSD.

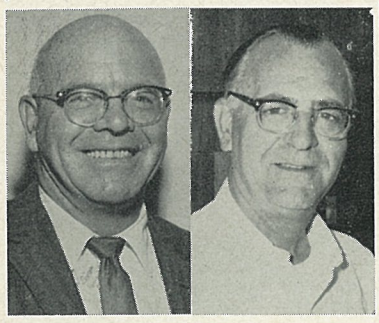
A dinner held Sept. 12 at the Schilling Officer's Club found honors being bestowed on several. Maj. Gen. Ostrander presented an Oak Leaf Cluster to the Legion of Merit of Col. Cruikshank. He then presented Commander's Awards to Jackman, Paul Gordon, an Astro complex supervisor who was instrumental in finishing his assignments in 25 per cent fewer manhours than programmed, Al Goehle, Astro group chief, and to Clem Blangers, president of building trades unions involved in the project.

In a surprise move Col. Cruikshank received a special award from Astro. It was a large

(Continued on Page 2)

BUILDING AID—Recently Employees' Con-Trib-Club members at Astro gave $5,000 to the San Diego Chapter, National Foundation. Of this, $3,000 was earmarked for Dr. Jonas Salk Basic Research Institute building fund at La Jolla. Dr. Salk, right, receives check from Larry Janson, EAA representative on Con-Trib board of directors.

Log Book Entries



Two received 25-year emblems at GD/Astro recently. They are C. W. "Bud" Dale, Dept. 573-4, left, and A. J. Augustenborg, Dept. 618-9.

Service Emblems

MAIN PLANT

Service emblems due during the period Sept. 16 through Sept. 30.

Twenty-five-year: Dept. 403-1, R. E. Bruce.

Twenty-year: Dept. 130-8, J. H. Cooper; Dept. 382, E. P. Copeland, Walter Heinold; Dept. 384-1, H. A. Kelso; Dept. 452-0, W. S. Sherman Jr.; Dept. 756-0, F. J. Lay.

Fifteen-year: Dept. 343-5, C. B. Coldren, E. G. Sherman; Dept. 451-0, A. G. Cartmill; Dept. 539-6, R. H. Taylor; Dept. 759-0, Refugio Zuniga; Dept. 781-0, L. D. Gross; Dept. 833-3, Santiago Saiz; Dept. 975-2, R. E. Reynolds.

Ten-year: Dept. 101-1, Jeanette L. Rice; Dept. 131-4, J. J. Curley Jr.; Dept. 143, C. E. Morphew, H. W. Stripling; Dept. 170-1, V. L. Floore; Dept. 193-3, C. O. Anderson; Dept. 322-1, Hurst Hogan; Dept. 331-2, R. L. Allen, Merva N. Peterson; Dept. 333-1 J. A. Ross; Dept. 337-2, Maxine B. Emrick.

Dept. 360-2, R. W. Eichmann; Dept. 382-2, Blas Vargas; Dept. 396-1, D. D. Stenger; Dept. 397-1, C. R. Roberson; Dept. 451-0, E. F. Cessna; Dept. 452-0, J. R. Stephen; Dept. 591-4, H. J. Wasilk; Dept. 663-2, E. W. Schwartz; Dept. 756-0, K. E. Harris; Dept. 782-0, J. W. Slagle; Dept. 832-1, W. T. Hudson; Dept. 833-1, J. R. Chlad; Dept. 965-4, D. W. Simmons; Dept. 974-2, C. W. McGinnis.

ALTUS AFB

Fifteen-year: Dept. 617-9, F. N. Garrett.

DYESS AFB

Fifteen-year: Dept. 618-7, M. H. Kelley.

LINCOLN AFB

Ten-year: Dept. 616-3, L. W. Smith.

PLATTSBURGH AFB

Ten-year: Dept. 620-4, Gerardo Torregrosa.

VANDENBERG AFB

Fifteen-year: Dept. 576-7, M. B. Stroud.

WALKER AFB

Ten-year: Dept. 619, C. A. Rekalske, P. F. Sepe Jr.

Promotions

MAIN PLANT

Promotions to or within supervision effective Sept. 10.

Dept. 101-7, Data Processing: To asst. research group engineer, C. H. Gutzler.

Dept. 105-0, Advanced Product Planning: To director, advanced product planning, L. K. Murray.

Dept. 151-2, Change Administration: To change administration supervisor, C. E. Hobson.

Dept. 154-1, Resources Planning & Control: To resources planning asst. supervisor, R. G. McGuire.

Dept. 155-0, Estimating: To estimating supervisor, F. L. Landgraf.

Dept. 370-4, AWS Test & Launch Operations: To flight test group engineer, H. L. Obertreis.

Dept. 373-7, AWS Design Engineering: To design group engineer, G. C. French.

Dept. 521, Engineering Administration Sub-Department: To asst. group engineer, J. M. Farnsworth, J. H. Viskil.

Dept. 558-3, Electronics Design: To electronics group engineer, A. A. Farmer Jr.

Dept. 561, Engineering Test: To standards lab group engineer, V. L. Brierley, R. G. Roscoe.

Dept. 565-4, Engineering Test: To test lab group engineer, H. W. Wegener.

Dept. 566-1, Engineering Test: To test lab group engineer, R. C. Hinck.

Dept. 567-3, Engineering Test: To asst. test lab group engineer, R. D. Crouse.

Dept. 591-5, Space Navigation & Data Systems: To research group engineer, E. Herz.

Dept. 651, SLV Test & Procedures Integration: To design group engineer, M. S. Fader, D. A. Seabaugh.

Dept. 661-4, SLV Electrical & Electronic Design: To design group engineer, F. L. Cook.

Dept. 833-3, Stores & Traffic: To shipping foreman, G. K. Parker.

Dept. 951-2, Centaur Technical Control: To flight test group engineer, C. K. Anderson.

Dept. 966-5, Centaur Design Engineering: To research group engineer, F. B. Anthony Jr.

VANDENBERG AFB (PMR)

Dept. 661-5, SLV Launch Computer (PMR): To design group engineer, J. M. Christy.

Births

MAIN PLANT

HICKS—Son, Robert Henry III, 8 lbs., born Sept. 12 to Mr. and Mrs. R. H. Hicks Jr., Dept. 567-7.

KARPIEJ—Daughter, Mary Anne, 8 lbs., 7½ oz., born Sept. 12 to Mr. and Mrs. Z. N. Karpiej, Dept. 322-2.

SHARP—Son, Thomas Glenn, 7 lbs., 4 oz., born Aug. 22 to Mr. and Mrs. Paul H. Sharp, Dept. 977-0.

WILLIAMS—Twin sons, Richard W., 6 lbs., 14 oz., and Vincent W., 3 lbs., 12 oz., born Aug. 2 to Mr. and Mrs. Richard B. Williams, Dept. 351.

Deaths

MAIN PLANT

COLDREN—Claude B., Dept. 343-5. Died Sept. 8. Survived by wife, Helen.

STOMSKI—William J., Dept. 974-2. Died Sept. 10. Survived by son, John.

DYESS AFB

BOWERS—Raymond E., Dept. 618-4. Died Sept. 9. Survived by wife, Joyce; son, R. Eugene Jr.; and daughter, Lorraine.

Personals

MAIN PLANT

I wish to extend to my many friends my sincere appreciation for the good wishes received for a speedy recovery during my recent illness. Your thoughtfulness was so very much appreciated.

W. E. Bowman
Mgr., Industrial Security
Dept. 130-1.

Twelve Atlas Sites Accepted

(Continued from Page 1)

trophy which has been presented weekly to Astro complexes judged best in overall performance for the past week. It was presented as a memento.

Sept. 13 saw a briefing by key officials held at the Officer's Club and then a trip to Complex 6. Ostrander passed on the traditional king-sized "key" to the facilities to Col. Hayes of SAC. He, in turn, passed it on to Col. Agan, commander of the crews who man all facilities there.

Col. Agan's 550th SMS is the eighth Atlas-equipped squadron to receive Atlas launch and service facilities.

Maj. Gen. Ostrander told those attending the ceremony:

"This is a payoff day for SAC and national defense. It helps give the United States the greatest peace-time deterrent force in history."

Discount Tickets To Fair Offered

Astronautics employees planning a fall visit to the Seattle World's Fair may want to take advantage of a few remaining discount tickets available through employee services.

These tickets are exchangeable at Seattle for admissions, rides, feature attractions, etc. They cost $6 for adults and $3.75 for children. Only a few are still available at Astro.

Circuitous Route Leads Ball to Cup

Al Gross of Dept. 301 at General Dynamics / Astronautics tells this one about the most unusual hole-in-one yet—and on his first round of golf!

Playing with friends at Salt Lake City on his recent vacation, Gross played a nine-iron shot on a par 3 hole near the clubhouse. His ball ricocheted off the caddy shack, struck the fence around the swimming pool and then dropped into the cup!

General Dynamics NEWS

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* * *

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Jr. Achiever Firms Form

General Dynamics / Astronautics boys and girls (between 15 and 19 years) are encouraged to join Junior Achievement firms sponsored by Astronautics Management Club.

This year, as in the past, the club is sponsoring two firms. Two teams of advisers have been named. E. H. Boldrick (Dept. 125) heads Team No. 1, while R. F. Stephens (Dept. 831) heads Team No. 2.

Junior Achievement is a nonprofit community effort to teach teen-agers the meaning of free enterprise in action. Firms are organized, elect officers, sell stock, create a product, manufacture it (paying wages to workers) and then market it.

More than 20 Junior Achievement firms are planned for the San Diego area. Applications are available through employee services at Astro.

J. M. Jones serves as club board of control representative for the project.

Any of the following advisers may be contacted for information: James Boylan, ext. 4331; Jim Braun, ext. 1337; Cliff Buchanan, ext. 3553; or Bill Potts and Art Shantz, both ext. 1210.

Former Actress Talks to Women

"Women Only" will be both the rule and the subject Oct. 3, when Astronautics Recreation Association presents Eden Ryl in a three-hour session "just for the girls."

Miss Ryl is a former Broadway actress, fashion model, radio and television performer, who conducts an unusual seminar-type program that has met with outstanding success in both the business and social world.

Her message applies to the working girl, housewife and to teen-agers interested in developing confidence, poise and personality.

Miss Ryl made her first appearance this week before a closed meeting at Astronautics. Her next presentation will be open to all women. A fee of $2 per person will be charged. Tickets will be limited to the ARA Clubhouse capacity and are now available through employee services outlets.

The program begins at 7 p.m. and closes at 10 p.m.

Another Las Vegas Bus Trip Planned

Another of GD/Astro Recreation Association's popular Las Vegas trips has been scheduled for the weekend of Oct. 19-22.

The tour package includes round trip transportation via chartered bus and two nights' lodging at Stardust Hotel.

Total cost is $25 per person.

Buses will leave GD/Astro's Bldg. 2 lobby at 5:15 p.m., Oct. 19, returning about 8 p.m., Sunday (Oct. 22).

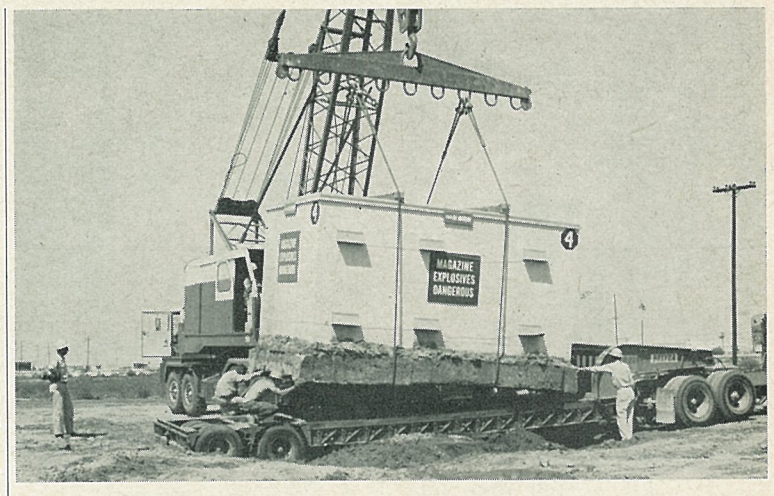
Trip applications are now available at all employee services outlets.

ARA Explorer Club Slates Field Trips

Under direction of Herman Reichert, recently named ARA commissioner, ARA's Explorer Club this month mapped field trips.

Outings include: Oct. 13-14, Spooks Canyon, San Marcos; Nov. 24-25, Old Dale, Joshua Tree National Monument; and Dec. 29 through Jan. 1, Picacho Mountains and the Coyote Canyon area. Additionally, some members will trek to Clark Dry Lake, Palm Canyon, Oct. 5-6.

An Oct. 17 meeting at the ARA Clubhouse will feature presentation of trophies for the best "find" on club trips, best photographs and best camping hint.



MOVING DAY—Heavy-duty mobile crane hoists 40-ton block magazine recently shifted several hundred yards to clear area east of Astro plant for installation.

GD/Astro Actresses Collect Share of Old Globe Awards

When the final curtain rang down on the annual Old Globe Theater Atlas Awards presentation this month, General Dynamics/Astronautics' "family" had again scored several major triumphs.

Marian Wallace of support publications won an Atlas for her performance as Ruth Younger in "A Raisin in the Sun." She was judged best in a supporting role by an actress.

Lillie Mae Barr, Prophet Co. employee at Astro, won her ninth Atlas for the best comedy role as Miss Prism in "The Importance of Being Earnest." Lillie Mae remains by far the "most decorated" of Old Globe performers in the number of Atlas awards received.

Mrs. W. R. (Rusty) Walker (husband in Dept. 454) won the Old Globe "ham of the year" award for extra service to the theater. She has never appeared in an Old Globe show, but has worked diligently behind the scenes.

Al Wallen of Dept. 223-3 failed to gain an Atlas but was one of the nominees for the best performance by an actor in a minor role. He appeared in "A Raisin in the Sun."

"Raisin" was named best production of the season.

SOLD OUT—Decked out in finery for ARA-sponsored "New Year's Eve" dance Oct. 13 at OceanHouse are Becky White, Tommy Martinez and Lorna Smith. They were lucky, bought tickets well in advance and avoided "sold out" sign. All 700 available tickets are gone, insuring capacity crowd.

Mgt. Club-Sponsored Reading Course Opens Tomorrow in Union Title Bldg.

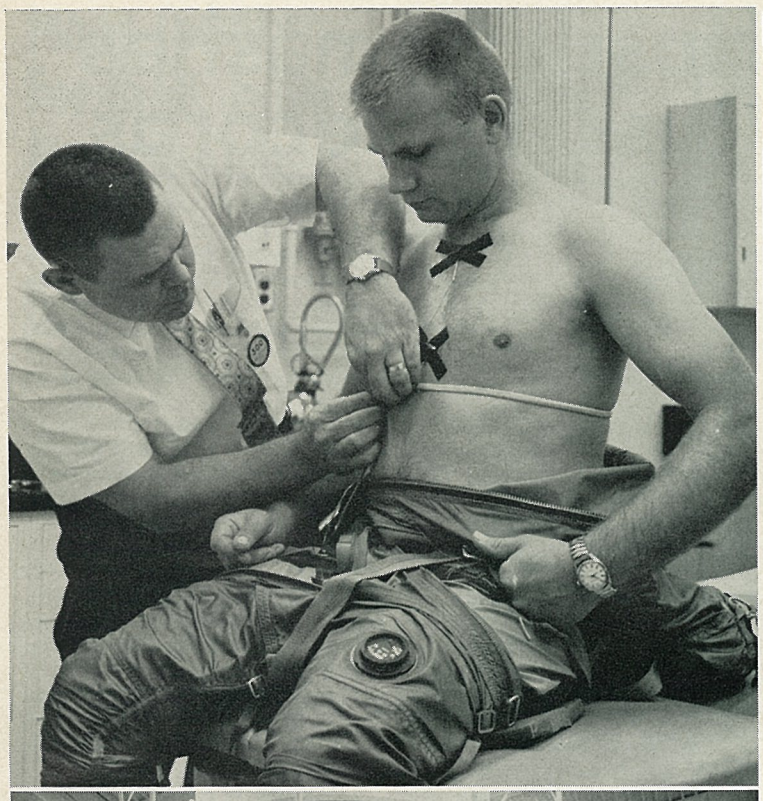
General Dynamics/Astronautics employees in the San Diego area are eligible to participate in a Management Club-sponsored Read-O-Rama course which opens tomorrow (Sept. 27) evening for a 10-week period.

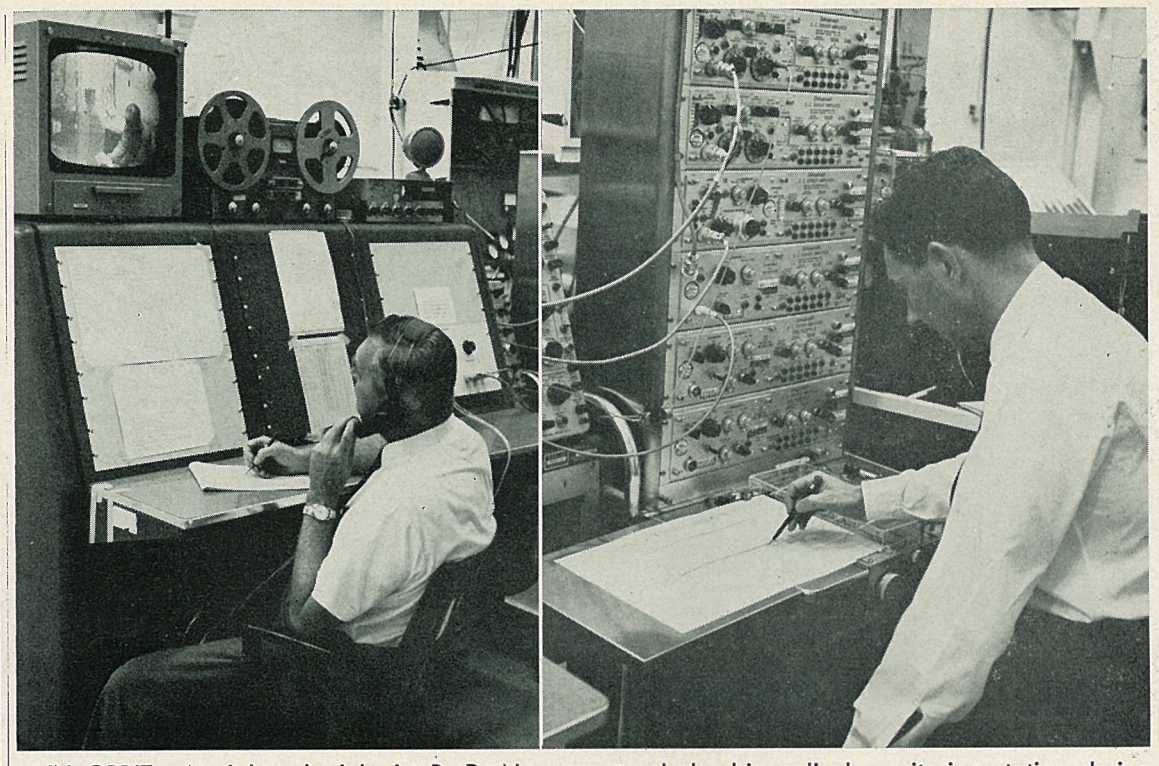
Taught at the Union Title Bldg., 2nd and A Sts., the course is aimed at improving a student's ability to read while developing basic concepts of concentration, vocabulary, comprehension and retention.

The cost is $50. Management Club members successfully completing the course (10 weeks, two nights per week) are eligible for a $10 refund.

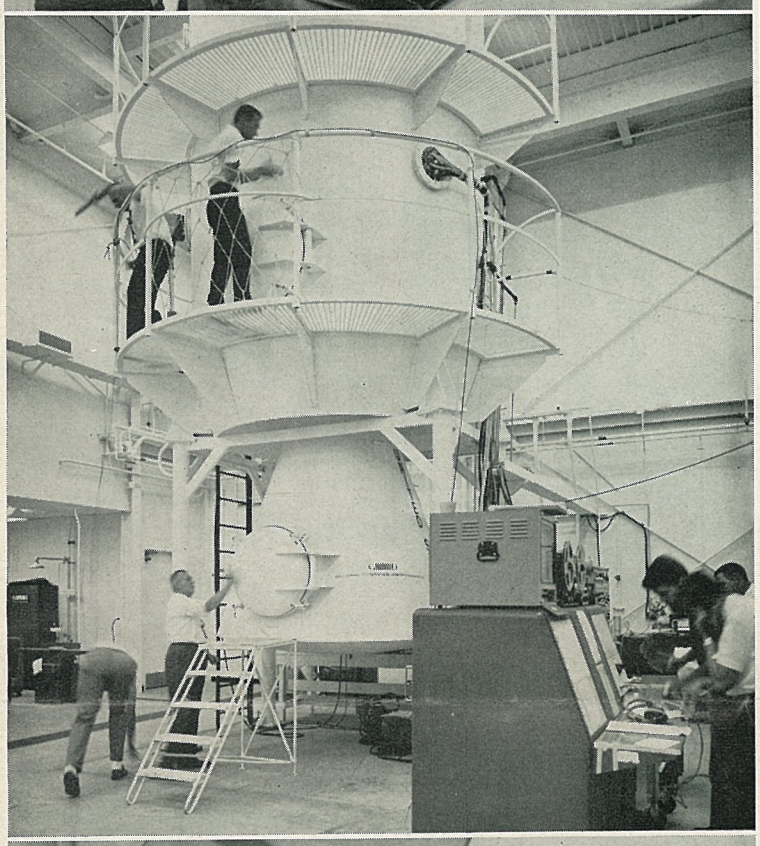
Information on the course is available through John White at ext. 1473.

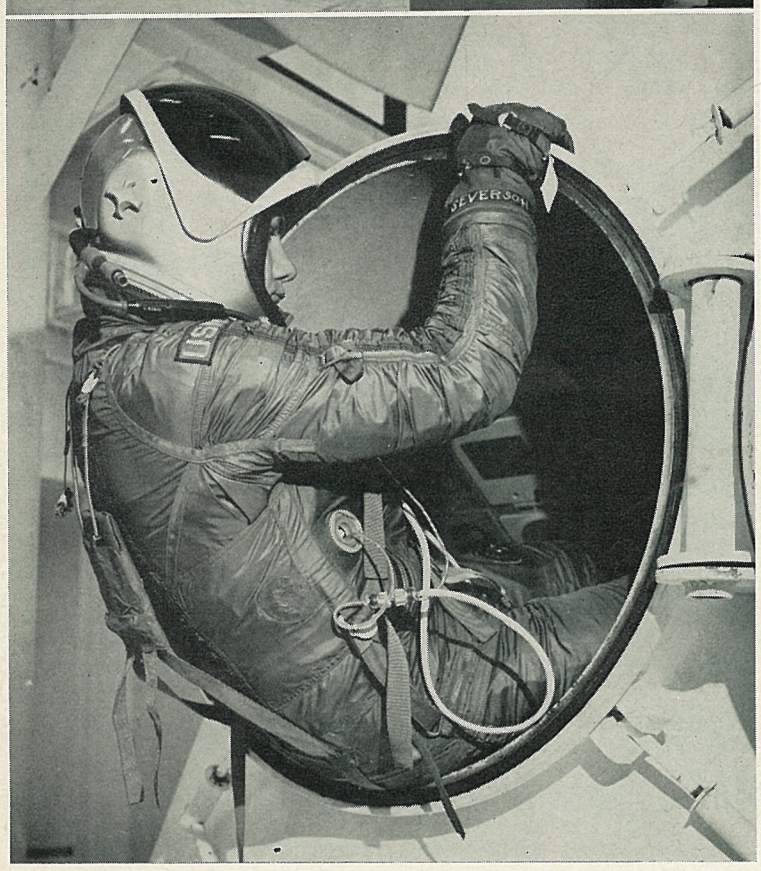
DISTINGUISHED—Key congressional leaders attended American Rocket Society meeting for Centaur presentation made by Vincent Johnson, NASA Centaur program manager, right, and G. L. Hansen, GD/Astro vice president—Centaur, left. Others, from left, Hunter Harrison, ARS president, Capital Section; Hon. George P. Miller, chairman, House committee on Science and Astronautics; Hon. Joseph E. Karth, chairman, House subcommittee on space science; Hon. James G. Fulton, member, House committee on Science and Astronautics. Photo by Tashian Photography.





IN ORBIT—At right, physiologist B. D. Newsom stands by biomedical monitoring station during manned test in space stimulator, receiving information on subject's pulse and respiratory rate, blood pressure, skin temperature, etc. In photo at left, R. L. Bottoms, master controller for tests, is in constant communication with subject. View of capsule interior is shown on closed circuit TV over console while recorder tapes conversation during test.





"SPACE" FLIGHT—Flurry of activity surrounds start of manned test in GD/Astro's Manned Static Space Simulator (MSSS). At top, R. R. Spradling attaches biomedical sensors which will aid in charting Dick Wolf's reactions during test. At bottom, pressure-suited Wolf enters lower compartment of MSSS.

Team Studies Man in Space Environment

In a two-story tower rising from one wing of General Dynamics / Astronautics' sprawling "waffle building" (Bldg. 4) at the division's San Diego main plant on Kearny Mesa engineers are taking long "journeys" into space.

The manned trips are simulated in a new and comprehensive life sciences facility by a team of medical and space science experts with an imposing list of specialties.

This is the life sciences section (Dept. 594-0) headed by Dr. R. C. Armstrong (MD), section manager, and chief of its aerospace medicine group (Dept. 594-3).

W. E. Woodson, human factors and human engineering specialist, is chief of human factors (Dept. 594-5), and George Drake, chief of life support engineering (Dept. 594-7) is an expert in life support equipment.

Dr. W. L. S. Wu (MD) is an aeromedical specialist; Dr. B. D. Newsom, a research physiologist; Dr. J. M. Coyne, a neuro-psychologist; Dr. R. S. French concentrates on experimental psychology.

The staff also includes such specialists as R. L. Bottoms (systems management), R. L. Wolf (personal equipment), John Hooper (electrical and electronic equipment), W. H. Reineking (crew equipment), and a dozen engineers in the chemical and mechanical fields.

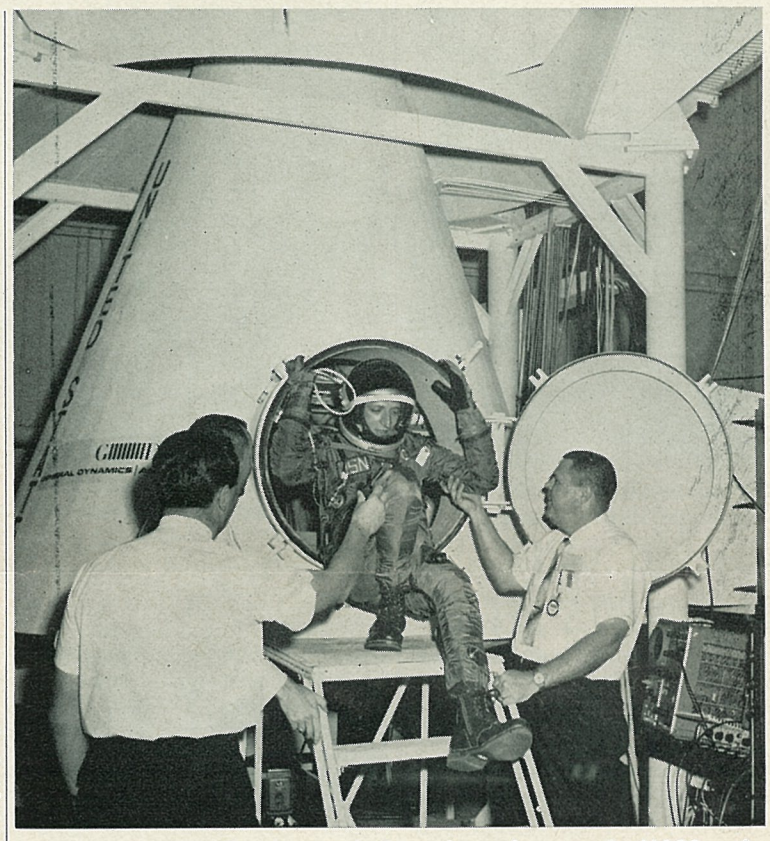
Base of operations for this team is Bldg. 4's new life sciences facility with clinical, biological and physiological laboratories and treatment center, psychological testing areas, space vision and life support equipment laboratories, offices, workshops, and a high bay area where space vehicle mockups are installed for simulating trips into space.

The integrated life sciences group provides a focal point for coordinating systems concepts involving man in a variety of "aero-space" situations. This includes Corporation-wide responsibility for research in the life sciences.

Unique is its capability to simulate a wide variety of space flights.

With the exception of weightlessness, the presently installed vehicle, called MSSS (Manned Static Space Simulator), can reproduce the essential phases of a mission beyond the earth.

It tests — simultaneously — all systems required to support human life under those conditions, with man actively participating in the system "loop."



HAPPY LANDING—At conclusion of another test in MSSS, subject Taylor Linzey emerges from capsule to accept greetings from John Hooper, Jack Tiernen, and R. R. Spradling, none the worse for his experience.

"This is a major advance over other life science facilities," explained a department spokesman. "By testing all systems at once we gain an entirely realistic approach in order to gauge the inter-relation of all phases of life support.

"In manned space flight, the capabilities and limitations of the astronaut must be considered in relation to systems for the support of his life and the accomplishment of the total mission."

Another unique capability of the group is its ability to assist in the development of personnel organizations for any particular manned vehicle system. This is accomplished by applying the results of a simulated program to the early determination (both quantitatively and qualitatively) of what personnel will be required to operate and maintain it.

With the MSSS "vehicle" proven as a reliable and effective research device (a recent manned test was a complete success), the group will expand to other areas. Other space vehicle mockups will take their places in the high bay area to be used in conjunction with MSSS or for independent tests and evaluations.

A list of projected life science studies indicates the potential utilization of this research facility in support of long range life sciences programs. On the docket are studies dealing with manned bases on the moon, lunar exploration, orbital manned space stations for a variety of missions, and manned deep space probes.

Sciences Addition Major '62 Project

Development of the 6,000-sq. ft. life sciences addition was a major 1962 project for GD/Astronautics plant engineering (Dept. 250-2), which set an accelerated pace for building the high-priority facility—and met the tight schedule for its completion.

Designed to plant engineering specifications by the firm of Ruskin and Antelline, the versatile facility was constructed by L. J. Neineman Co. GD/Astro construction engineers were George Hutson and H. C. Phillips, with Wes Muse as project engineer.

R. D. Leonard was plant engineering supervisor and R. F. Grimshaw, coordinator.

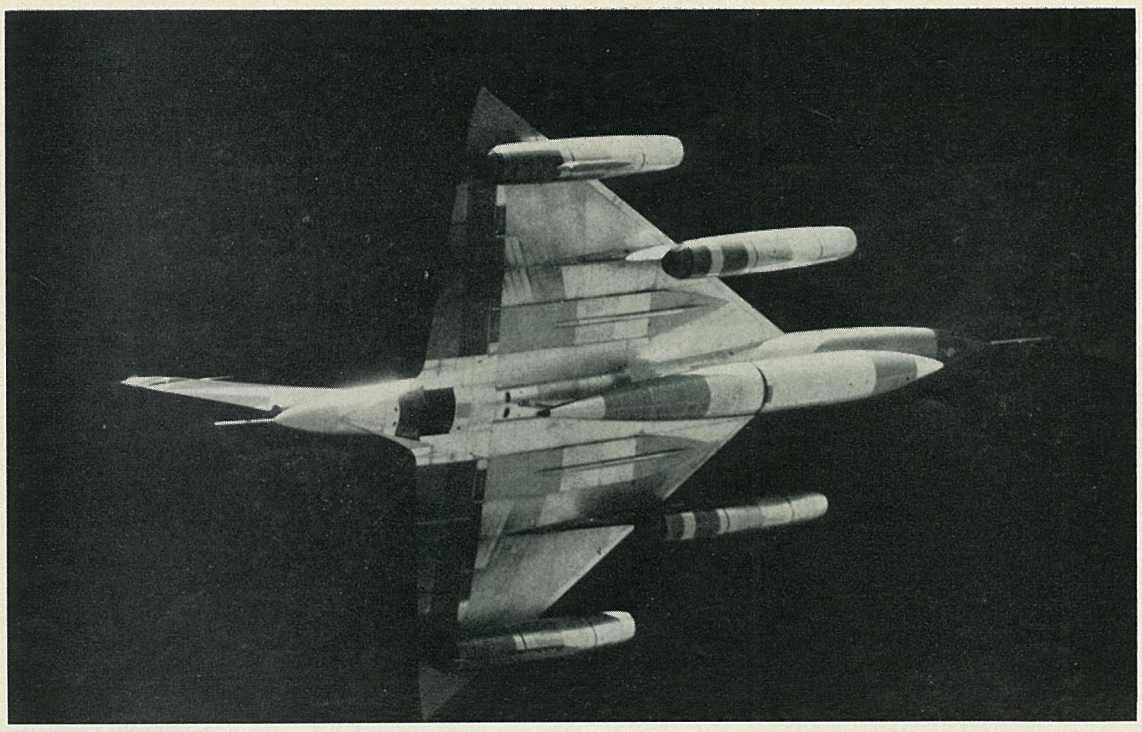
Sonobuoy Radio Receiver Order Awarded to GD/E at Rochester

The U. S. Bureau of Naval Weapons has awarded a contract to General Dynamics/Electronics-Rochester for special electronic equipment used in anti-submarine warfare.

The contract calls for the production of AN/ARR-52 airborne sonobuoy radio receivers and related support and test equipment, all completely transistorized.

Carried in patrol planes, the sonobuoy receives pick-up sounds broadcast by floating buoys equipped with submerged hydrophones. The support equipment provides automatic and semi-automatic checking of the receivers' performance to insure operation at maximum efficiency.

The new contract, for $834,737, carries on work which has been under way about two years.



HIGH FLYER—B-58 Hustler built by GD/Fort Worth flew 16 plus miles above earth this month to set new altitude-payload records.

Hustler Smashes Russian Records

Maj. Fitzhugh Fulton Jr. piloted a B-58 Hustler to over 16 miles above Edwards AFB, Sept. 14, to claim two new world altitude-with-payload records for the U. S. Air Force. The records were formerly held by the Soviet Union.

The Hustler reached an indicated height of 85,360.8 feet and carried a payload of 5,000 kilograms (11,023 lbs.) in attaining the 14th record set by a B-58 since January, 1961.

The Hustler flight topped two records set by the U. S. S. R. in recent years: a 50,252.2 ft. flight on Sept. 16, 1959, with the same payload; and another of 66,170.72 ft. with 2,000 kilograms (4,400 lbs.) set July 29, 1959.

On-the-spot certification of the record flight was made by the National Aeronautics Association, which will forward the marks as new world records.

Major Fulton, former test pilot with the Air Force Plant Representative's office at GD/Fort Worth, is now chief of bomber flight test section of the Air Force Flight Test Center at Edwards AFB.

Navigator on the flight was Capt. William R. Payne, while Charles R. Haines, civilian flight test engineer, occupied third station.

The records were the 13th and 14th set by B-58s since early 1961. B-58 crews from the 43rd Bomb Wing kicked off a series of assaults in 1961 which set a total of nine new world speed and payload marks in five months.

Six records were set by two B-58s on Jan. 12 and 14, 1961.

One B-58 set three new official 1,000-kilometer (630-mile) closed-circuit records by flying an average of 1,284.73 mph. A second B-58 set three new official 2,000-kilometer (1,260) closed-circuit records by flying the route at an average speed of 1,061 mph.

The seventh award for a B-58 came on May 10, 1961, when a 43rd Bomb Wing crew sped around a closed course of about 670 miles in 30 minutes, 43 seconds.

The eighth and ninth records came on May 26, 1961, when a Hustler flew non-stop from Fort Worth to Paris, setting a new Washington-to-Paris record and a new New York-to-Paris mark. The NY-to-Paris time was 3 hours, 19 minutes, 51 seconds, an average speed of 1,089.36 mph.

Three more records were set by a B-58 on the famous round-trip flight from Los Angeles to New York. Time for the LA-to-NY run was 2 hours, 58.7 seconds, an average of 1,214.65 mph; return flight was made in 2 hours, 15 minutes, 50.1 seconds, an average speed of 1,081 mph.

Overall time for the round-trip flight, including refueling and turning around, was 4 hours, 41 minutes, 15 seconds, an average speed of 1,044.96 mph.

After leveling off at 35,000 feet, Fulton accelerated to some 1,300 mph, went into a steep 35 degree climb over Edwards to peak trajectory, then nosed the plane down.

PILOT — Maj. Fitzhugh Fulton Jr., who piloted B-58 to new records, is shown in cockpit.

NATIONAL VALUE CONFERENCES SET

General Dynamics divisions will be represented at two upcoming national conferences on value engineering, set for early next month.

E. W. Feddersen, GD director of manufacturing engineering; E. D. Heller, GD/Pomona value control coordinator; H. P. Williams, GD/Convair manager of value control; M. M. Reeder, GD/Electronics value control coordinator, will attend the conference on value engineering sponsored by Electronic Industries Association at St. Louis, Mo., Oct. 1-2, and the Society of American Value Engineers conference in Los Angeles Oct. 9.

Heller will act as chairman of the advanced techniques session at the St. Louis meeting as well as a member of the planning committee. GD/Convair value control coordinators will take part in panel discussions at the Los Angeles gathering.

GD/Convair Continuing Support For AF Planes

General Dynamics/Convair has received orders for 27 different tasks for the Air Force during the last ten months under a time and material contract, only one of its type ever issued the division.

The contract for engineering services in support of Convair-built military planes was awarded GD/Convair last fall, effective Nov. 1, through San Antonio Air Materiel Area.

By mid-September four tasks had been closed with Air Force approval, two were completed and waiting AF concurrence, and 21 were still in progress. And, more support calls are in sight before expiration of the current contract next month, predicts service parts, which administers all tasks and follow-on procurement.

Under terms of the contract, GD/Convair furnishes, upon request, engineering services, related data, prototype kits in support of T-29s, C-131s, F/TF-102As, F-106As and F-106Bs in service with the Air Force. In addition to support systems, services also include related ground support, training, and test equipment.

Specific calls include investigative engineering in-plant (as an example, one recent task saw engineers making an AC/DC electrical load analysis), or investigation into specific emergency-type incidents at AF bases, requiring immediate action. Also, the division can be called upon to build hardware for maintenance, overhaul, or modification of aircraft. GD/Convair men are sent to AF bases to assist in installation of prototype kits of parts for any kind of modification called for.

Many of the tasks have drawn on the capabilities of every function within the San Diego facility — engineering, modification publications, service publications, graphic reproduction, planning, tooling, purchasing, experimental, fabrication, inspection.

Time required for the numerous tasks has varied from six weeks to several months, some stretching throughout the entire year's period.

Tasks in progress at the end of the present contract will be carried through to their conclusion, and negotiations are now in progress for a similar contract for identical services throughout the coming year.

Corrosion Subject For Panel Talks

General Dynamics materials experts will take part in symposia on corrosion problems in the missile and aircraft industry at the Oct. 3-5 Western Regional Meeting of National Association of Corrosion Engineers.

The three-day conference will be held at San Diego's Catamaran Hotel.

A. Hurlich, chief of materials research at GD/Astronautics, will chair the Oct. 4 symposium on missile corrosion at which John W. Hensley of the U. S. Naval Ordnance Test Station at China Lake, Calif., will be main speaker.

E. I. Weed of GD/Pomona materials and processes and T. T. Tanaliski of GD/Astro materials research will be among panel speakers.

A. F. Hooper of the GD/Astro materials research laboratory will be chairman of the Oct. 5 symposium dealing with aircraft corrosion problems.

Film of Record-Setting Hustler Flight Premiered at Carswell AFB Last Month

A new 20-minute film of a B-58 Hustler's record-breaking, transcontinental flight last year was premiered at Carswell AFB last month.

"First" prints of the color movie were awarded to the crewmen and the 43rd Bomb Wing commander at the Wing's monthly Commander's Call.

B. G. Reed, GD/Fort Worth vice president - operations, presented prints to Col. Everett W. Holstrom, wing commander, and crewmen on the historic flight: Maj. Robert G. Sowers, pilot; Capt. Robert McDonald, navigator; and Capt. John T. Walton, DSO.

Produced at GD/Fort Worth, the film shows both ground and in-flight scenes of the 4-hour, 42-minute flight from Los Angeles to New York and return.

The crew received the Bendix Trophy for the feat.

QUALITY TALKS—Seated at head of table are three principals in General Dynamics Quality Control Working Committee meeting held at Astro, W. B. Harrell (NASA), J. E. Trader (Astro), and Ray Donaldson (NASA). Other representatives shown and their divisions include D. L. Hill (Astro), Lester Dassoff (Astro), B. M. Skrobiza (Electronics), T. J. Marcella (Astro), W. C. Wilhelm (Astro), C. W. Bailey (Pomona), D. W. James (Fort Worth), G. R. Bailey (Convair), Charles Wallman (Convair), S. K. Chambers (Pomona), and Kent Sinclair (Electronics).

GD/Astro Hosts Quality Meet; NASA Requirements Studied

GD/Astronautics welcomed two special participants and a group of "regulars" Sept. 5-6, at San Diego, as host organization for a General Dynamics (Corporation) Quality Control Working Committee meeting.

W. B. Harrell and Ray Donaldson of NASA's George C. Marshall Space Flight Center, Huntsville, Ala., joined representatives of major General Dynamics divisions for the sessions.

A key item on the agenda was "NASA requirements for personnel training, certification and qualification." Discussions involved study of concepts and interpretation of salient points found in a NASA quality control program document (NPC 200-2).

Also under study were "unified and common test equipment calibration procedures" and "standardization of (mutual) supplier quality evaluation and measurement."

Gathering periodically at various participating divisions, the committee exchanges knowledge, plans and resolutions attendant to quality control. It plays a major role in coordinating exchange of quality control techniques, concepts and experience information and helps strengthen controls related to procured materials, including the exchange of quality control procurement services for economy. Also important is work leading to the establishment of uniform procedures and centralization of controls whenever possible, particularly as related to supplier quality.

P. I. Harr, Astro director of reliability control, acted as host.

F-102 RETURN—Two Air Force F-102As on GD/Convair flight line for installation of photographic and test instrumentation bring memories of several years ago when they were familiar sight. C. S. Rosefeld and W. C. Roberts of development and modification check blueprint.

Many Qualify For B-58, F-106 Mach 2 Clubs

GD/Fort Worth's Mach 2 Club —once one of the world's most exclusive aviation fraternities—is now "pledging" members by scores.

The club was formed May 30, 1958, for anyone who had flown in a B-58 at twice the speed of sound.

Only 27 intrepid aerialists answered roll call at the club's charter meeting. Today, membership is approaching 600, and applications pour in daily.

Membership in the Interceptor Wing of Mach 2 Club is open to fighter pilot personnel who have flown at Mach 2 in a Convair plane. The club's executive director is Dick Johnson, former GD/Convair test pilot and now director of flight and quality assurance at GD/ Fort Worth.

Appropriately, B. A. Erickson, GD/Fort Worth's ace test pilot (now retired) was voted executive director of the Mach 2 bomber group.

Erickson had taken the B-58 on its maiden flight Nov. 11, 1956, and he was the first pilot to push the delta-winged speedster into the double sonic regime.

Erickson and a group of his cohorts—along with a handful of Air Force officers—formed the nucleus of the charter membership.

But as the Hustler joined SAC's strike force at 43rd and 305th Bomb Wings, memberships began rolling in. "Since Mach 2 is routine for the Hustler, virtually all B-58 crewmen are eligible for the club," an Air Force spokesman said.

In early September, 546 members had earned the right to wear the distinctive "M2" lapel pin.

"To join, a person must submit his name and resident address, date and location of Mach 2 flight and type of aircraft, and name and address of at least one person who can certify the flight," a club spokesman said.

The lure of flying at twice the speed of sound has attracted a host of notables—both military and civilian—with a "need to fly."

Last month Brig. Gen. Howard W. Moore, commander of the 19th Air Division, became the 11th Air Force general to gain membership.

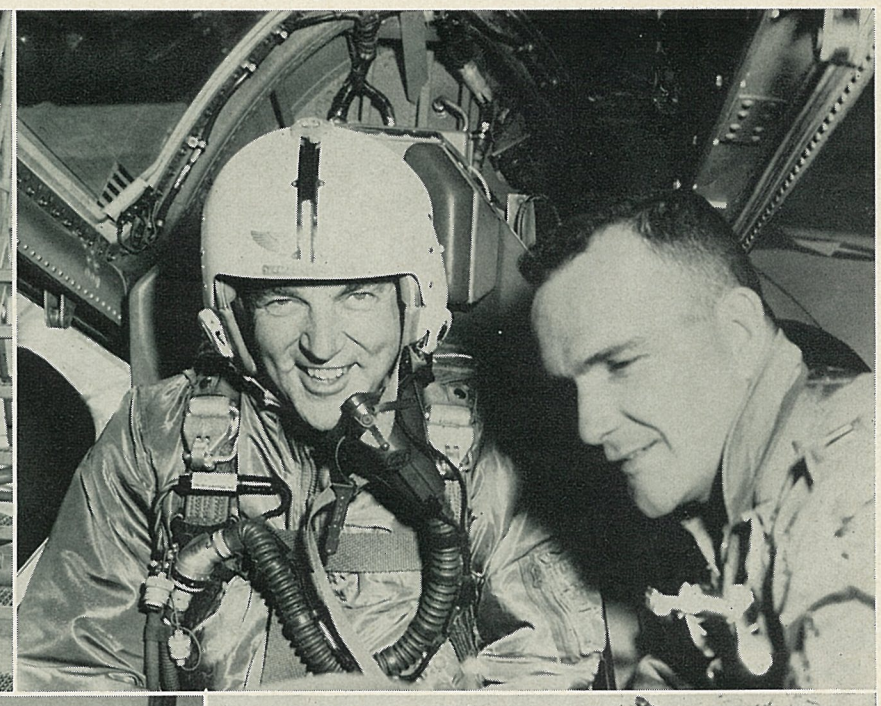
Others are Gen. T. S. Power, Lt. Gen. C. S. Irvine, Maj. Gen. T. C. Odom, Maj. Gen. J. V. Edmondson, Lt. Gen. M. E. Bradley, Brig. Gen. B. A. Schriever, Maj. Gen. John W. Carpenter, Maj. Gen. Bruce K. Holloway, and Lt. Gen. J. D. Ryan.

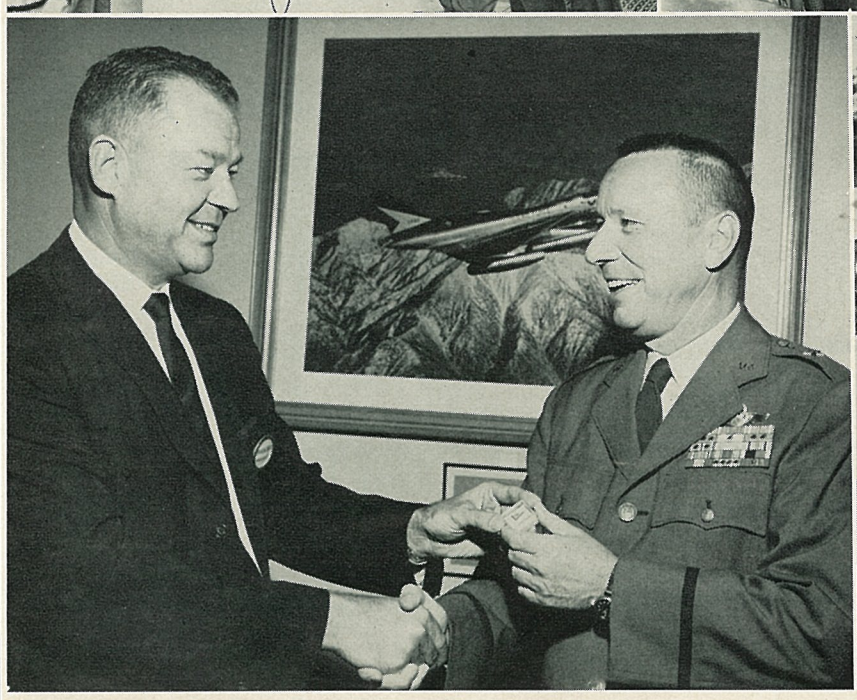
How does a Mach 2 ride feel? Perhaps the reaction of General Power is typical. Following the flight he said: "It was a very smooth ride. If you weren't looking at the instruments, you wouldn't know you ever flew faster than sound."

Col. Godfrey T. McHugh, President Kennedy's aide, gained membership during his B-58 flight.

A handful of air-minded Congressmen desiring first-hand knowledge of America's supersonic wherewithal, also boast Mach 2 certificates. They include Texas' own Jim Wright, Senators H. W. Cannon and Frank E. Moss, and A. W. Blackburn, Assistant Director of Defense R&E.

Meanwhile, members are accepted almost daily into this fraternity of airmen who have contributed virtually all of the Mach 2 bomber experience known today.

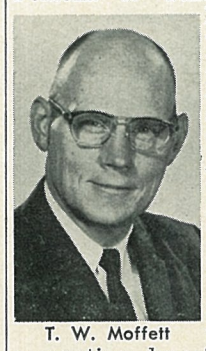




SUPERSONIC—At top left are Capt. J. R. Frei, Maj. John Irving, Lt. Vincent S. Karaba, T/Sgt. William T. Stott, members of record-breaking B-58 crew of 43rd Bomb Wing that flew record 1,000 hours in August. Lower left, GD/Fort Worth President Frank W. Davis presents Mach 2 Club pin to Brig. Gen. Howard W. Moore, 19th Air Division Commander at Carswell AFB, for Mach 2 flight in Hustler. Top right: Mayor Neal R. Fosseen of Spokane, Wash., beams in cockpit of F-106 after Mach 2 flight with Capt. Jackie E. Moothart of 498th FIS. Lower right: Maj. Gen. James V. Edmundson, right, Commander 17th AF, headquartered at Ramstein Air Base, Germany, accepts congratulations from GD/Convair rep. G. S. Mathews after checkout in F-102A of 526th FIS. Others, from left: Col. David McKnight, Lt. Col. William Ford, Capt. Robert Taylor.

Moffett Transfers To GD/Electronics

Thomas W. Moffett has transferred from General Dynamics/ Pomona to General Dynamics/ Electronics division at San Diego this month as manager of industrial accounting.


T. W. Moffett

Moffett, a native of New Haven, Conn., had been with GD/Pomona the last 10 years as timekeeping supervisor in the accounting department.

He was manager of industrial accounting for Security Engineering Co., division of Dresser Industries, at Whittier, Calif., from 1948 until he joined General Dynamics in the fall of 1952. Before that, he had been with the Allison Division of General Motors Corp., Indianapolis, Ind., for 10 years in timekeeping and inventory control.

SWISSAIR EXTENDS JET 990 SERVICE

Swissair added another city to its 990 air route to South America last month, extending the continent-hopping Convair jet airliner's itinerary 1,300 miles.

Santiago, Chile, is now terminal point of a 990 round trip from Zurich, Switzerland, to South America.

Twice a week a Convair-built 990 flies passengers over Swissair's network from Zurich to Santiago and back, touching down at Lisbon, Portugal; Dakar, West African seaport; Rio de Janeiro, Brazil; Montevideo, Uruguay; Buenos Aires, Argentina; then across the Andes to Chile.

After it returns to Zurich the 990 continues on in the opposite direction to Tokyo, Japan.

Lost Rod Tip Hooked Over Month Later

An unusual "fish tale" involving GD/Astronautics' Al Gross (Dept. 301) and Rudy Romero (Dept. 324) is making the rounds.

Gross was fishing in Mexico south of San Diego, near "kilometer 181" when he hooked the proverbial "big one." The fish snapped his rod and made off with the tip end. This occurred July 14.

Over the Labor Day weekend Romero was fishing the same area. He hooked the missing four-foot rod section and brought it in, minus fish!

NO SHOW PENALTY FOR AIR TRAVELERS RELAXED A TRIFLE

General Dynamics employees traveling on company business will be affected by a recent Civil Aeronautics Board modification of its "no-show" penalty regulation.

An earlier CAB ruling provided a stiff penalty for travelers failing to cancel confirmed flight reservations. Only exception was a 30-minute grace period provided for travelers using an airline-sanctioned means of transportation which was unavoidably delayed en route to the airport.

Under the modified regulation, the grace period will also apply to travelers prevented from meeting their flight's departure time, regardless of what surface transport is utilized.

Essentially, this means that travelers delayed by heavy traffic or other conditions beyond their control may present their tickets at the appropriate airline ticket counter up to 30 minutes after their flight's departure and avoid penalty.

GD/FW Tool Experts Contribute To New Engineering Textbook

Two GD/Fort Worth tooling specialists are among several contributors to "Fundamentals of Tool Design," a technical tool engineering textbook prepared by American Society of Tool and Manufacturing Engineers.

They are F. Lee Edmondson, Dept. 24-1 tooling engineer, who is national technical publications vice-chairman of ASTME, and Fred D. Hitter, Dept. 24-2 tool design engineer.

Published by Prentice-Hall, the book is authored by 82 practicing engineers, educators and technical specialists, and represents the efforts of virtually all ASTME chapters throughout the country.

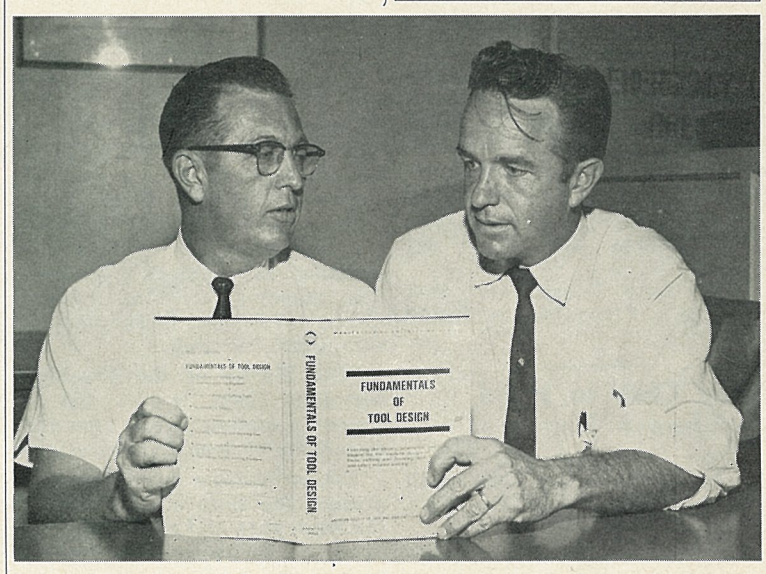
Edmondson introduced the project to the North Texas Chapter of the society. Hitter's work involved review and correction of material and submission of information for the work book, to be released soon.

In presenting a first copy of the book to Hitter on behalf of ASTME, Edmondson said the book is designed to be "of great value to tool and manufacturing engineers, and to those who are studying to become tool or manufacturing engineers."

Basic designs for machining, pressworking, casting, assembly, and inspection processes are among subjects explained and illustrated.

NURSE ATTENDS N. Y. CONFERENCE

Lorna M. Payne, GD/Convair staff nurse, attended the 10th Annual Presidents Meeting of the American Association of Industrial Nurses, Inc., in New York City Sept. 22-23. Mrs. Payne is president of the San Diego Industrial Nurses Association.



LITERARY HELPERS—F. Lee Edmondson, right, Dept. 24-1, presents "first" copy of new textbook published by American Society of Tool and Manufacturing Engineers to contributing editor, Fred D. Hitter, Dept. 24-2, both Fort Worth.

Fatigue Test Data Address Prepared

C. R. Smith of GD/Convair fatigue laboratory will present a paper next week before the American Society for Testing Materials at Hotel Statler in Los Angeles, Calif., Oct. 3.

"Small Specimen Data for Predicting Life of Full-Scale Structures," is title of paper based on Smith's research at GD/Convair.

BELOW BORDER—General Dynamics group enjoys "south of border" atmosphere on recent two-week journey into Old Mexico organized by Jim Hardison, of GD/Convair Dept. 15, in center shot with Betty Huddleston and Kay Anderson, both of GD/Electronics. At left are musicians of all ages snapped at Tlaxcala, famous as "home of mariachis"; at right, GD travelers enjoy stop at Guadalajara night club.

'Silver Bird' Event Highlight Of Gillespie Field Shoot

Highlight of CRA-ARA Gun Club's monthly shoot, Sunday (Oct. 7), will be a "Silver Bird" event.

Gillespie Field range is the site, open to all General Dynamics nimrods and families. Both trap and skeet shooting begin at 9 a.m.

"At least one silver target (bird) will be thrown for each squad competing," explained CRA Commissioner Jack Swank. "Any shooter breaking a silver bird qualifies for a shoot-off to be held at noon. Prizes will be awarded winners."

Entries are now being accepted for the annual "Big Game" drawing held every December. GD hunters bagging any species (deer, bear, moose, elk, lion, elephant, etc.) may enter.

Entry blanks are available at employee services outlets at all plants (GD/Convair, GD/Astro, GD/Electronics). One entry may be made for each kill of a qualifying beast. A wide variety of prizes will be awarded in the drawing at close of contest in December.

All Dynamics employees and guests are welcome to join the Gun Club for regular Wednesday and Friday practice shoots, 6:30 p.m., at Gillespie Field range.

Information regarding CRA-ARA Gun Club activities may be obtained from Swank at ext. 2583, Plant 1, or ARA Commissioner Ezra Johnson, ext. 2283, Plant 71.

Bridge Club Play Doubles

Since meetings were shifted to ARA Clubhouse, ARA Bridge Club attendance has nearly doubled, permitting a corresponding split in fees charged for various club events.

Participation fees for monthly Master Point nights have been reduced from $1 to 50 cents, and the cost of regular play nights has been halved to 25 cents.

The group plays at 7:30 p.m., each Thursday.

At a recent Master Point session the club was divided into two sections for play. First place winners were Don Abernathie, Bruce Beach, Pauline Blough, Paul Lewis, Guy Mabie, John Pitta, Art Saastad and Jim Svoboda.

At "Winner's Game," held monthly for winners of competitions conducted by all San Diego area bridge clubs, three members of the ARA club took first place honors in their sections. They are Mrs. Robert Rustad, Mrs. Paul Stevens and Mrs. Art Saastad.

Mrs. John Donan won first place in a "Unit Master Point" game.

Teen Club to Hold Clubhouse Dance

Astro Teen Club will hold a regular dance from 7:30 until 11 p.m., Oct. 6, at the ARA Clubhouse.

One guest per membership card will be allowed. The cost is 25 cents per person. Girls will wear school clothes, while sport shirts and slacks are acceptable for boys.

CRA and ARA Gardeners Plan Joint Meeting in Balboa Park

CRA Garden Club members will join with the Astro gardening group next week to hear two experts discuss fall planting and care of blooms in the Floral Association Bldg.

The joint meeting will be held next Wednesday, (Oct. 3) in the Balboa Park location at 7:30 p.m.

"Beauty in the Garden," will be subject of James Murphy of Garden Town Nursery as he outlines best types of flowering plants for fall, winter, and spring blooming.

A representative of Ara Chem, Inc., nursery suppliers, will talk on the advantages of using Lumite plastic shade cloth for lath houses.

CRA Commissioner E. L. Zimmerman and ARA Commissioner Everett Henderson, in charge of arrangements, urge all General Dynamics people interested in hearing gardening tips for this time of year to attend the open meeting.

Plans for the annual CRA-ARA fall flower show, for chrysanthemums and roses, will be discussed during the business portion of the meeting. Show date is Nov. 4.

Programmers Meet Sept. 27

General Dynamics programmers and training personnel are urged to attend tomorrow's (Sept. 27) monthly meeting of the San Diego Chapter of the National Society for Programmed Instruction.

Meeting place will be the Convair cafeteria's main dining room, Pacific Hwy., 7:30 p.m., said J. D. Meacham, GD/Convair Dept. 16-1, who is serving as pro tem. president.

Highlight of the evening's program will be a talk by Dr. E. F. O'Day Jr., assistant professor of psychology at San Diego State College. Dr. O'Day will describe his experiences in developing a program on rocket propulsion this summer at China Lake, Calif., naval base, in conjunction with naval research.

Ellis Wayne of the Teaching Materials Corp. is expected to present a motion picture film and discussion of teaching materials.

The nominating committee will present the slate of officers for the next year and a chapter emblem will be chosen. Coffee will be served.

Further information is available from Meacham, ext. 2249, or C. M. Keys, ext. 2782, both Plant 1.

GD/E Sponsors Quality Meet

General Dynamics people in the San Diego area are invited to attend the Oct. 8 meeting of the American Society for Quality Control, which is being sponsored by GD/Electronics division.

H. J. Stuart, GD/Electronics manager of reliability and quality control, in charge of arrangements, said that a tour of the Gavitt Wire Co., Escondido, manufacturers of high-grade electrical hook-up wire, will highlight the evening meeting.

The tour will follow a 6:30 o'clock dinner in the Planet Room of Palomar Lanes in Escondido.

Stuart said that the meeting will be of especial interest to all GD/E, GD/Convair, and GD/Astro quality control and inspection personnel.

Reservations may be made through the following contacts: GD/Convair—Phil Rader, Plant 1, ext. 663; Fred Lay, Plant 2, ext. 2057; GD/Electronics—Kent Sinclair, Plant 1, ext. 2212; Ivan Kemper, Hancock St., ext. 36; GD / Astro — J. F. Baebler, ext. 639; Eric Callard, ext. 3395; George Huff, ext. 2997; J. S. Ortega, ext. 4168; Lee Sattro, ext. 1500; J. G. Sugg, ext. 686, all at the Kearny Mesa main plant site.

Bargain Battery Prices Offered

General Dynamics people in the San Diego area may purchase batteries at wholesale prices through a special offer of the U. S. Battery Mfg. Co.

The company handles custom-built batteries of all types—automobile, marine, commercial. It is located at 2215 Kettner Blvd.

ARA Flag Football Teams Organizing

An organizational meeting for team managers or representatives of teams wishing to take part in ARA-sponsored flag football this winter has been set.

The time is 5:15 p.m. and the place ARA Clubhouse.

All teams desiring to enter winter competition are required to have a representative on hand.

Salvage Purchase Schedules Set

Salvage yards at GD/Convair and GD/Astro will be open 8 a.m. until noon on the following alternating Saturday schedule:

GD/Convair—Sept. 29, Oct. 13.

GD/Astro—Oct. 6, 20.

Salvage yard employee sales require payment in full at time of purchase and all sales are final.

Dynamics Travelers Return From Train Tour of Mexico

A group of General Dynamics men and women, from GD/Convair, GD/Astro, GD/Electronics, returned the first of this month from a specially-arranged two-week tour into Mexico to test their newly-acquired linguistic ability developed during a summer of ARA-CRA Spanish classes.

(The nine-week courses, stressing basic "tourist" Spanish, attracted more than 100 GD people.)

From the time the more than a dozen General Dynamics travelers boarded the Baja California-Sonora train at Mexicali, Aug. 17, until their return on Labor Day, they viewed a constantly changing panorama of Mexican life—from obscure Indian villages to highly-civilized Mexico City.

James Hardison, GD/Convair Dept. 15, who has taught Spanish classes for General Dynamics the last four years, said that his "students" and traveling companions found that they could understand conversations, order meals, ask directions, and sightsee on their own with their knowledge of the language.

Hardison repaid Mexican hospitality by showing the GD/Astro film, "Friendship 7," to the National University's engineering department, to science majors at Mexico City College, and to personnel of a Mexico City electronics firm.

A day in Taxco, stop at Cuernavaca, and four days at the plush El Presidente Hotel in Acapulco filled the second week before the GD tourists headed back to Mexico City and home again.

Over Hundred Make Outing

One-hundred and five employees and their families from GD/Convair and GD/Astronautics participated in the joint ARA-CRA Ice Skating Club's recent "Autumn Weekend at Big Bear Lake."

The pleasure-seeking horde filled Wawona Lodge to overflowing, with a few of the group spilling over into an adjacent facility.

Under direction of ARA Commissioner Bud Davies, the group took part in swimming, horseback riding, ping pong, and a host of other activities. Featured sport was skating, and 62 persons took to the ice to display varying degrees of skill.

Gil Hutter, Prophet Co. cafeteria manager at GD/Astro, and his staff served a Saturday evening meal of charcoal broiled hamburger steaks, followed by a marshmallow roast.

After dancing, and group singing around an open fire, a "midnight snack" of pizza was served.

Hunters to Attend Annual Duck Party

General Dynamics nimrods in the San Diego area may be interested in attending the annual Ducks Unlimited fund-raising party slated for Oct. 4 at Hotel del Coronado.

Tickets are $15 each and include a boneless squab dinner, entertainment, and an opportunity to win prizes. Proceeds help restore duck breeding areas in Canada.

Tickets may be obtained from George Cowan (Dept. 812) at Astronautics main plant.

Interest Gains In Sports Car Economy Run

Interest in this weekend's "Eagle Eye II Economy Run," sponsored by CRA Sports Car Club for all General Dynamics, is snowballing with Astro's Sports Car group scheduling it as their monthly event.

Special awards have been set aside for first through third places in ARA club entries, said Chase Allen, rally master of the Sept. 30 event.

Altogether, General Dynamics sports car drivers will vie for 21 prizes in the Sunday rally. Awards will go to winners and runners-up in Classes A through F, top three spots in ton-mile sweepstakes, and first three CRA and first three ARA club places.

The "Economy Run" is restricted to General Dynamics employees from any of the San Diego facilities, said Allen, who urges all GD/Convair, GD/Astro, GD/Electronics, General Atomic drivers to turn out.

According to present indications, at least 60 cars will compete, predicted Allen. He stressed that there is no limit to entries, as long as they are General Dynamics people.

Participants may bring guests, however, and cars will be weighed empty so that passengers will not affect weight of entries.

Registration will begin at 10:30 a.m., at the Wilshire Service Station, 3647 Rosecrans St. with first car scheduled out at 11 a.m. Safety and technical inspection to insure against added weight to help ton-mile determination, gas fill-up, and weighing will take approximately 20 minutes.

Entry fee of $1 per car will be charged. Fee covers weighing and use of private picnic facilities on Campo Road, which have been reserved for the outing.

Astro sports car drivers intending to enter may call ARA Commissioner E. S. "Judge" Penick, ext. 3162 at Astro main plant. GD/Convair and GD/Electronics people, as well as GD/Astro persons located at Plant 1, may receive information from Allen, ext. 1208, Plant 1, or CRA Commissioner Gerry Wright, ext. 2868, Plant 1.

$1,000 BED GIVEN ROSWELL HOSPITAL

WALKER AFB—A new circular therapeutic bed has been purchased for St. Mary's Hospital, Roswell, by GD/Astronautics employees here through Con-Trib-Club.

The bed, costing almost $1,000, is used for patients with a spinal condition, or those paralyzed. It allows hospital personnel to turn patients from their stomach to their back with little or no discomfort.

Rex Ubben, GD/Astro manager here, and John Livsey, IAM representative on the Con-Trib-Club executive committee, made the presentation recently.

Sister Leonilla, hospital administrator and Sister Superior, accepted.

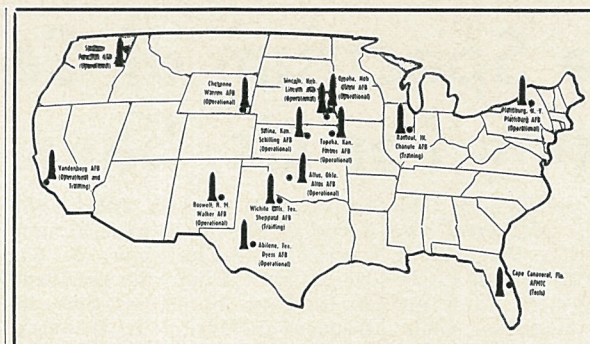
Foursome Keglers Meet For Awards

PLATTSBURGH AFB—Members of the ARA-sponsored Foursome Bowling League held an awards dinner at the North Bowl Alleys here recently to wind up summer activities.

In the 22-team league the Frabs won the championship with the Up-n-Atoms second and the S.O.Ls. third.

High individual honors went to Ruth Gallego (210) and Jerry Rosswick (241) for a single game and Ester Sita (514) and Dick Rowe (574) for series.

Audrey Carlton and Dan Morgan were named most improved bowlers.



OFF-SITE NEWS

AFMTC—R. E. Flanagan, ext. 4011.
ALTUS—Jean Foster, ext. 669.
DYESS—Wanda Oakley, ext. 8370.
EDWARDS RS—Chris Marques, ext. 27.
PLATTSBURGH—Elly FitzPatrick, ext. 6281.
VANDENBERG—Lucy Signorelli, ext. 8-0546.
WALKER—Rod Bricker, ext. 603.

Edwards Rocket Site Keglers Take First in Handicap Loop

EDWARDS RS — An ARA-sponsored bowling team here has walked off with major honors in the Sands Bowl (Lancaster) Thursday men's handicap league.

The team copped first place in the league by winning 38 and dropping only 18. Taking the lead on the first night of action, the Astro men were never headed throughout the season.

Team members with their high individual game and series efforts in parentheses were: Lou Nardi (207-542); Gene Swaim (218-555); Len Frimenko (256-631); Roy Kurtzman (200-557); Howard Holland (244-618); Virgil Burgess (184-483); Carl Worthen (205-575).

The team also logged the high series title for the year, coupling a 2,805 scratch total with a 90-pin handicap for a grand total of 2,895. And to top it they had high game with 1,072 pins, plus 30 handicap, for a total of 1,102.

On sweeper night Swaim rolled a 558 scratch singles, which added to a 36-pin handicap gave him 594. Swaim and Frimenko took second in the doubles with individual 594 and 547 scores respectively for a total of 1,141.

"Yes, I can see that you've had a busy day."

Coffee Concession Profits Disbursed

SCHILLING AFB — Profits from a Dept. 321-2 "coffee concession" operated over a period of months here have been turned over to the Schilling Unit, Air Force Aid Society.

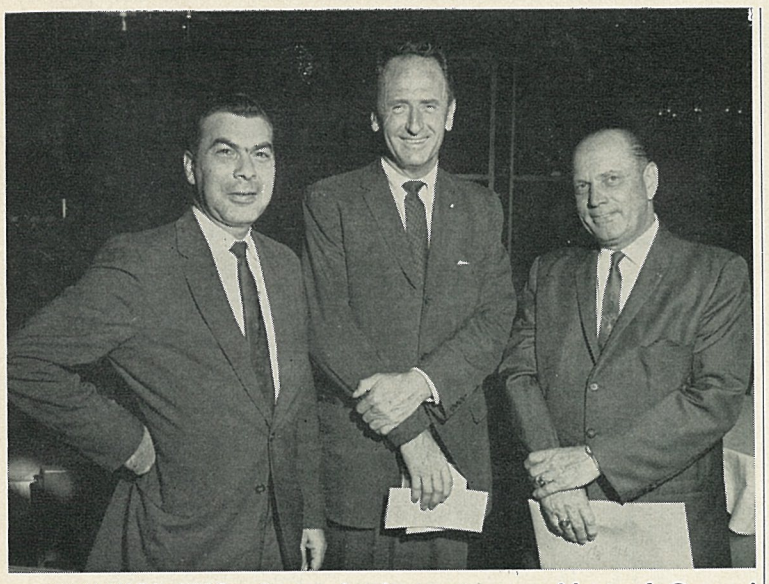
This agency extends aid to Air Force personnel and their dependents in emergency and operates a dependents' college scholarship program.

150 Attend Walker Sectional Picnic

WALKER AFB — Some 150 members and guests of GD/Astro transportation section personnel here turned out recently for a summer picnic.

Events included sack and foot races, badminton, horseshoes and a tug-o-war pitting female teams. Prizes were awarded to winners of all events.

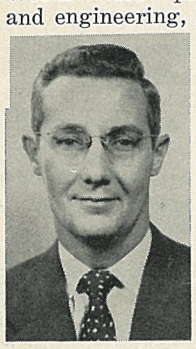
ROUNDING THE BASES—Top left: Rex Ubben, left, GD/Astro operations manager at Walker AFB, and Frank C. Gabriel of Eastern New Mexico Medical Center examine $1,600 respirator, gift from Con-Trib-Club. Top center: Ubben and John Livsey represent Walker Con-Trib members in presenting check for therapeutic bed at St. Mary's Hospital, Roswell. Top right: Plattsburgh employees, through Con-Trib, gave $600 to Plattsburgh School for Retarded Children. Lawrence West, right, accepts from GD/Astro's L. H. Main and John Hotaling. Middle row, left: ARA "slow pitch" team at Cape Canaveral poses in new uniforms. Standing are Dick Landress, Ron Pearson, Tom Henry, Walt Cunningham, Hugh Winn. Crouched are Stan Medanic, John Jeffers, Bill Dejournett, Jim Harrington, Sam Lindemuth. Middle row, center: C. A. Klyber, GD/Astro inspection at Plattsburgh, managed this sons' team to season championship. Middle row, right: Lou Nardi, Gene Swaim, Len Frimenko, Roy Kurtzman (plus Howard Holland, Virgil Burgess and Carl Worthen, not in photo) represented Edwards ARA and won Sands Bowl keg tourney at Lancaster. Lower left: Louis Renelli, who has driven 70,000 accident-free miles at Fairchild and Walker, center, receives award from Howard Rang, assistant supervisor, and G. R. Coen, safety engineer. Lower center: Rex Ubben of Walker presents Atlas model to Col. E. M. Jacquet, commander of 579th Strategic Missile Squadron. Maj. Jack Lennox, safety officer, will use it for trophy. Lower right: El Paso Natural Gas Co. men aided GD/Astro crews at Walker AFB to transport demineralized water during emergency and received color photos in appreciation. From left, J. J. Zathan, H. V. Eppler, M. E. Fenner, W. B. Watkins.



DYNAMICS TRIO—Roger Lewis, center, president of General Dynamics, posed during recent San Diego visit with J. H. Famme, right, president of GD/Convair, and John Lombardo, new general manager for GD/Electronics at San Diego.

GD/FW's Widmer Chosen For 'Spirit of St. Louis' Medal For Work on B-58

Robert H. Widmer, GD/Fort Worth vice president-research and engineering, has been named winner of the Spirit of St. Louis Medal for 1962 by the American Society of Mechanical Engineers.



Robert Widmer

He was named winner for his "outstanding contributions to the development of the B-58 airplane."

The award will be presented at the Gas Turbine Propulsion-Aviation-Hydraulics Conference March 5 at Los Angeles.

The Spirit of St. Louis Medal is ordinarily awarded by ASME every three years for "meritorious service in the advancement of aeronautics."

Widmer is the 13th person to win the medal. The award has been made every three years since its inception in 1929, except when presented successively in 1954 and 1955—and now in 1961-62.

Samuel K. Hoffman received the medal in 1961 for his contribution to the first major long-range, rocket-powered engine; and Widmer, of course, is the 1962 recipient.

Previous winners of the award have included such notables as Will Rogers in 1935, James B. Doolittle in 1938, and John K. Northrop in 1947. The latter won the honor for "development of a successful flying wing."

Widmer graduated from Rensselaer Polytechnic Institute in 1938 with a bachelor's degree in aeronautical engineering; he obtained a master's degree in aeronautical engineering the next year from California Institute of Technology.

The veteran engineer began his career with GD/Convair in 1939 as an aerodynamics engineer on B-24 and B-32 bombers.

He was transferred to the Fort Worth Division in 1942 as head of the aerodynamics group. In 1949 Widmer became chief design engineer-technical, and was subsequently promoted to chief engineer, then vice president-research and engineering.

In addition to his outstanding work on the B-58, Widmer was closely associated with the YB-60 and B-36, receiving the Air Force Association's Annual Field of Science Award in 1949 for his work on the latter.

In recent years, Widmer has served on several committees of the National Aeronautics and Space Administration and as a member of the operating committee of the USAF Arnold Engineering Development Center at Tullahoma, Tenn.

For the past seven years he has served as consultant to the Assistant Secretary of Defense on research and engineering and as a member of the Air Force Scientific Advisory Board.

Widmer is also acting chairman of the University of Texas aerospace engineering visiting committee, a member of the University of Texas Engineering Foundation's Advisory Council, and assistant chairman of the scientific center committee for the Fort Worth Chamber of Commerce.

"Boy! Wipe that silly grin off his face."

'Wide Spectrum of Capability' Working For Us, Says Lewis

Roger Lewis, president of General Dynamics, addressed two gatherings in San Diego Sept. 11 and Sept. 12, one for GD/Convair Management Club and one for GD/Astronautics' Club.

His remarks, tempered by cautious optimism, touched upon division opportunities and outlined the increasingly competitive nature of the aerospace business.

Among those at the speaker's table Sept. 11 were J. H. Famme, GD/Convair president; E. J. Williams, Dynamics vice president-manufacturing; J. T. MacDonald, assistant to Lewis; John Lombardo, newly-named general manager of GD/Electronics at San Diego; E. R. Fink, club president. At the Sept. 12 meeting those introduced included J. R. Dempsey, GD/Astro president; Dr. Frederic de Hoffmann, president of General Atomic; Ed Russell, club president; Frank Traversi, GD/Astro director of material; and Williams.

At both meetings Lewis emphasized the vital requirement for greater effort toward excellence in submitting business proposals, and the need to anticipate and be alert to opportunity.

"There is a continuous process of technological breakthrough going on," he told GD/Convair. "The fellow who solves the problem of keeping up and keeping ahead, will prosper . . .

"In making a proposal, study the situation carefully, know the real customer requirement, learn everything possible about the problems involved, have a clear insight into what the competition is doing," he told GD/Astro.

Other highlights:

The character of military business is changing gradually, but definitely. Systems are so complex and so expensive that the United States must be highly selective. GD must be sure it is working on the right family of weapons.

* * *

Speaking directly to GD/Convair, which he described as "lean and hungry," Lewis affirmed his faith in manned aircraft as a potential and predicted "a lot of aircraft work" still ahead. He indicated that 1962 might well turn out to be a low point in manned airplane activity.

* * *

Lewis emphasized General Dynamics' wide diversity of talent and facilities in air, sea and land technology and urged all divisions to think less of themselves as specific divisions and more about the strength of the Dynamics overall organization.

"All divisions are part of the family. We have competitive strength in unity and we must attack our problems as a team."

* * *

At both meetings Lewis referred to GD/Fort Worth's current efforts toward the TFX multi-service fighter contract and praised the division as having done a great job "win or lose." He used this effort (which has been going on for two years) as an example of the requirement to work far in advance in anticipating future needs.

* * *

Touching upon his own theories of management, Lewis indicated that titles and how many people work for an individual mean little, but accomplishments mean everything. "Each of us must understand the purposes of General Dynamics as an enterprise and do all we can to advance it."

* * *

"I'm optimistic about General Dynamics. There is a lot of strength here. The times are right for exceptional effort. The Corporation has the advantage that there is none with so wide a spectrum of technology which can be called upon as the situation requires.

"The rate of change will be great in the next 10 years, and if we are on the ball we will have a share in its opportunities."

* * *

Both meetings were thrown open to questions from the floor and at both, the question was asked if he thought politics or depressed area considerations played a part in contract awards. Lewis' answer was essentially the same, pointing out that it is to the customer's advantage to encourage competition by spreading business, but stressed that companies must get work on a hard-boiled basis of technological know-how. "They are not going to get business because they happen to be hard up."

ASTRO NIGHT—Roger Lewis chats with J. R. Dempsey, president of GD/Astronautics, prior to talk before GD/Astro Management Club.

GD/Astro Greeters See Kennedy on Cape Trip

CAPE CANAVERAL — About a dozen General Dynamics/Astronautics employees here on all levels exchanged greetings with President Kennedy during his recent visit to this installation.

Three aircraft carrying the presidential party landed at the Cape Skid Strip. A motorcade was formed and proceeded directly to Complex 14, the Atlas-Mercury pad from which two previous manned flights were made and another is pending.

Greeting the President on arrival were Astronaut Walter Schirra and Col. Paul R. Wignall, commander of the 6555th Test Wing. They briefed the party on the upcoming flight as it moved up the ramp.

In a roped off area all General Dynamics/Astronautics employees working Complex 14 waited along with associate contractor personnel. The President broke away from the official party and shook hands with as many as he could reach in the crowd.

B. G. MacNabb, GD/Astro director of operations here, greeted the President and introduced him to key Astro men, including Tom O'Malley, who launched the John Glenn flight, and Cal Fowler, who launched Scott Carpenter and is scheduled to launch Schirra.

On departing, the President turned back to say good-bye to the approximately 75 men on hand. His tight schedule called for about 14 minutes at Complex 14. He actually spent 16 minutes.

While Astro employees could not hear the exchange between the President and his briefers, they noted he seemed extremely interested and interrupted several times to ask questions.

PRESIDENTIAL VISIT — President Kennedy and Astronaut Schirra listen as B. G. MacNabb, GD/Astro director of operations at AMR, conducts briefing at Complex 14, Cape Canaveral. President met key Astro men there, shook hands with many in work force.

Spurgeon Will Talk On Adhesive Bonding

James Spurgeon will represent GD/Convair at the Western Engineering Conference and Tool Exposition of the American Society of Tool and Manufacturing Engineers in Los Angeles Oct. 1-5.

Spurgeon, who has been closely connected with development of GD/Convair's Scotchweld bonding process, will talk on "Adhesive Bonding Applications in Space-frame Structures," at the Wednesday (Oct. 3) session.

Conference meetings will be held at the Ambassador Hotel with the Western Tool Exposition, including an extensive display of aerospace and airframe tools, at the Pan Pacific Auditorium.

GD

ASTRONAUTICS EDITION

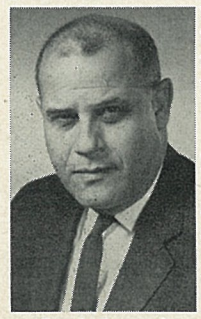
GENERAL DYNAMICS NEWS

Vol. 15, No. 21 PUBLISHED BY GENERAL DYNAMICS CORPORATION 52 Wednesday, October 10, 1962

Frank Traversi Named VP For Administration

Organizational changes within the executive structure at General Dynamics/Astronautics have been announced by President J. R. Dempsey.

Included are the elimination of an executive vice president post, appointment of two new vice presidents and a reduction in the number of functional department heads reporting to Dempsey.



Frank Traversi

New vice presidents are Mortimer Rosenbaum for research, development and engineering, and Frank J. Traversi for administration. Rosenbaum was executive vice president and Traversi, director of material.

Citing the need for a higher degree of control and efficiency in light of the changing nature of Astronautics business, Dempsey said changes were made so that proper emphasis and coordination may be given technical, administrative and operations functions within the division.

"Until fairly recently, our main work was development of the Atlas and its operational bases. Some development continues on Atlas, but we also have Centaur and other programs," Dempsey said. "The need is to have a management which can handle a number of different, highly-technical programs simultaneously."

The pending completion of base activation tasks and the phasing out of certain programs have reduced demands on the president's office, making the function of an executive vice president no longer necessary, Dempsey added.

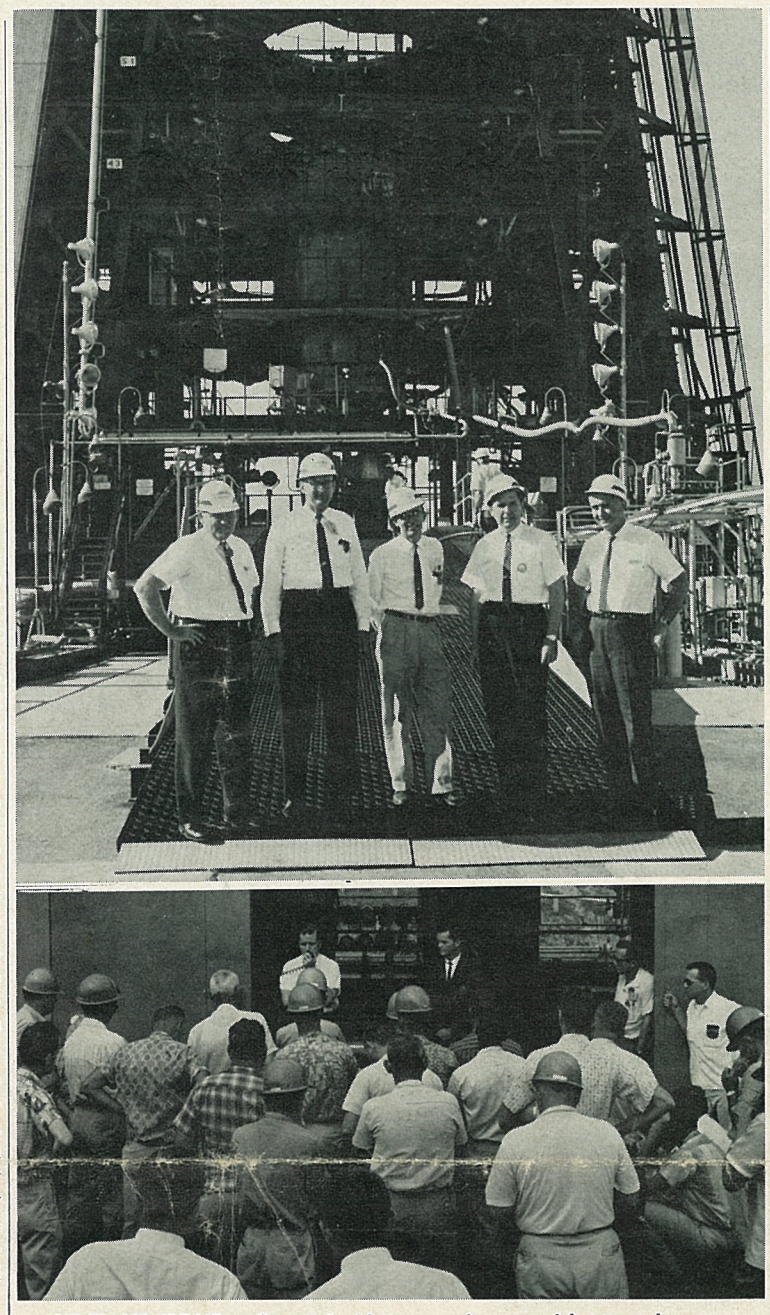
However, as head of total research and technical design activities, previously more widely distributed in the division staff, Rosenbaum will be filling a key post, he added.

Reporting to Rosenbaum will be: W. W. Withee, vice president — engineering; K. J. Bossart, technical director; K. A. Ehricke, director of advanced studies; Dr. H. F. Dunholter, director of research and development; F. J. Dore, director of advanced systems; and Andrew Kalitinsky, program director—Nova.

Administrative department heads now reporting to Traversi include: C. W. Blakey, director of contracts; C. T. Newton, director of communication; M. V. Wisdom, director of industrial relations; G. M. Robertson, director of management systems (except resources planning and control); and a director of material (except material operations). Traversi will act as the latter at present.

E. D. Bryant, vice president—operations, will continue to head his present organization with the following additional responsibilities: E. A. Reynolds, director of product support; J. K. Davant, manager of resources planning and control; and R. E. Poling, manager of material operations.

Four vice presidents and program directors—Charles S. Ames, space launch vehicles, William L. Van Horn, Atlas weapons system, Grant L. Hansen, Centaur, and Sam L. Ackerman, electronic products—and W. H. Patterson, vice president—advanced product planning, continue to report to Dempsey. Also, E. G. Hill, controller, P. M. Prophett, director of base activation, and H. Cushman Dow, chief counsel.



CENTAUR TOUR—Grant L. Hansen, vice president and program director—Centaur, has been making rounds, briefing key Centaur units. At top he is at Test Stand 1-1 at Edwards RS. From left: W. R. Jackson, V. L. Allwardt, John Mantle, Hansen, F. E. Wilhelm. In lower photo, Hansen addresses personnel at Sycamore Canyon.

RS, Cape and Sycamore Briefed About Centaur

EDWARDS RS—In rapid order, Grant L. Hansen, vice president and program director—Centaur, spoke before three groups here Sept. 26 to wind up a series of talks before all Centaur program employees.

These talks, made over a period of several weeks, have found Hansen appearing before Centaur personnel at the main plant, Sycamore Canyon, Cape Canaveral and here.

In each he has discussed all phases of the program. He told those participating of Congressional investigations and their results, management technical reviews conducted by NASA's Marshall Space Flight Center and some background on the Centaur project. He spoke of problems faced in the past and some indication of future plans. He left no doubt that the Centaur program is one of vital importance to the nation and will continue. At the conclusion of each talk he answered questions from the audience.

His appearances here were similar to those at other locations. He and key leaders in the program appeared in the test area to talk first with day shift employees, later with those reporting for night shift assignments.

Climaxing his visit here was a talk before the Antelope Valley Management Club of General Dynamics. Following his talk, he took his place as a panel member with others to answer questions and discuss Centaur.

The panel was moderated by V. L. Allwardt, Astro's manager here. Panel members besides Hansen were: W. R. Jackson, manager of test operations; F. E. Wilhelm, assistant to the vice president; J. C. Cannady, financial control manager; and Allwardt.

Centaur Project Reins Shift to Lewis Research

Project management of the General Dynamics/Astronautics-produced Centaur launch vehicle has been reassigned by the National Aeronautics and Space Administration (NASA).

Program responsibility now rests with NASA's Lewis Research Center, Cleveland, Ohio. Previously, it fell to the Marshall Space Flight Center, Huntsville, Ala.

Announcement of the change was part of a three-step effort on the part of NASA to intensify the development program for space use of liquid hydrogen, according to Administrator James E. Webb.

Also included were plans to initiate studies to determine the merits of the adaptation of the Centaur stage to other boosters for future use in the NASA space exploration program and the reassignment of project management of the hydrogen-fueled M-1 rocket engine to the Lewis Center.

Centaur is a liquid hydrogen upper stage, the nation's first, powered by two 15,000-pound thrust RL-10 engines. With an Astronautics Atlas Series "D" first stage, it has been designed for a prime mission of soft landing a 2,100-pound Surveyor spacecraft on the moon. Future missions involving this combination include Mariner interplanetary flights and boosting spacecraft into 24-hour synchronous orbits.

The M-1 engine, largest liquid hydrogen/liquid oxygen rocket engine under development, will have 1.2 million pounds of thrust. It is designed to power the second stage of a Nova launch vehicle through clustering of engines.

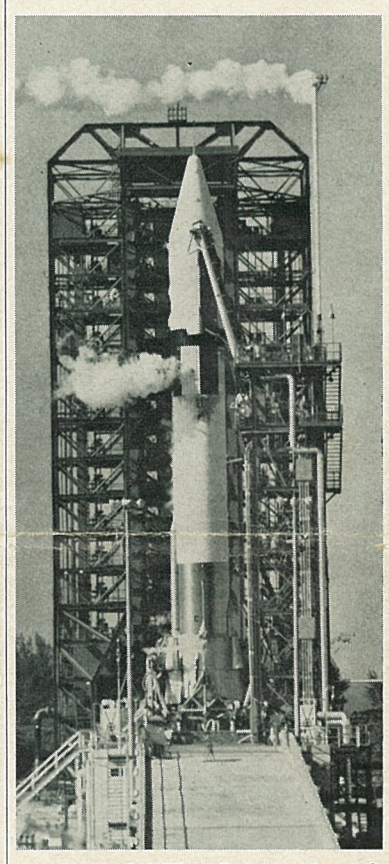
In commenting on the transfer, Administrator Webb said: "It will permit the Lewis Center to use its experience in liquid hydrogen to further the work already done on one of the most promising high energy rocket fuels and its application to Centaur and the M-1.

"By allowing the Marshall Center to concentrate its efforts on the Saturn vehicles for manned lunar landing, we will be able to achieve our objectives in the time frame that we planned," he added.

Lewis Center has pioneered in the field of liquid hydrogen fuels, starting a study in 1950 and test firing a 5,000-pound thrust engine in 1953.

At GD/Astro, Grant L. Hansen, vice president and program director-Centaur, indicated the new project management responsibilities would not affect Astro's internal Centaur group.

"We will continue to give the Lewis Center our complete support, just as we have the Marshall Center in the past," he said.



REINS SHIFT—Centaur launch vehicle, shown here atop Atlas first stage prior to launch this year from Cape Canaveral, has been shifted from one NASA group to another for project management.

Webb pointed out that a detailed analysis of Centaur was made following a failure on its first flight test in May, 1962. This analysis supports the concept and design of Centaur as a sound basis for an intensified development effort which will result in a vehicle capable of the high performance missions assigned to it, he added.

The intensified program will concentrate on successful completion of the research and development flights by late 1964 or early 1965, with operational capability available thereafter.

Dr. Abe Silverstein is director of the Lewis Center. A Centaur project office is being established as part of the program under Bruce Lundin, associate director for development.

For over 20 years involved in researching advanced aircraft and space vehicle propulsion techniques, NASA's Lewis Research Center has recently added to that task the management of development projects.

Located on 250 acres of NASA-owned land adjacent to Cleveland-Hopkins Airport, the facility is staffed by nearly 4,000 persons.

In addition to the Centaur program, Lewis also manages the planned Apollo lunar-landing module.

Atlas Launch Perfect For Six-Orbit Flight

"Near perfect" is the term heard most often in referring to the six-orbit flight last week of Astronaut Walter Schirra.

And the term has a sweet sound, indeed, to the thousands of General Dynamics/Astronautics men and women who played vital roles in making it possible. It is a fitting reward, if one is needed, for the many, many extra moments, and motions spent in seeing that Atlas 113-D was fabricated, checked out and launched with the utmost care.

Details of the flight are history. Launch came at 7:15 a.m. (EST) at Complex 14 and ended nine hours, 13 minutes later with successful recovery of the Sigma 7 spacecraft in mid-Pacific. Apogee in the six orbits was 176 miles and perigee, 100 miles. Orbit speed was 17,560 miles an hour.

"It was a perfect shot—the finest countdown we ever had," said B. G. MacNabb, Astro's director of operations at AMR. "There wasn't a hitch. The 'bird' behaved perfectly."

Conducting the countdown and commiting Atlas 113-D to flight was Calvin D. Fowler, Astro site

(Continued on Page 2)

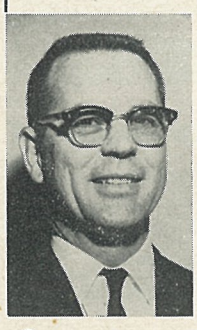
Heinemann, Richardson Named Dynamics' Vice Presidents

Edward H. Heinemann and Howard L. Richardson have been elected vice presidents of General Dynamics Corporation, Roger Lewis, president, announced last week.

Heinemann will have corporate-wide responsibility in the field of engineering while Richardson will be responsible for corporate planning. Both posts are newly cre-

(Continued on Page 2)

Log Book Entries



Robert E. Bruce, GD/Astro Dept. 403-1, recently received his 25-year emblem.

Service Emblems

MAIN PLANT

Service emblems due during the period Oct. 1 through Oct. 15.

Twenty-five-year: Dept. 382-3, W. F. McGrath.

Twenty-year: Dept. 143-5, W. W. Berger; Dept. 144-3, Michael Buchko; Dept. 383-4, J. A. Gabriel.

Fifteen-year: Dept. 101-1, F. J. Knight; Dept. 154-1, C. F. Ley; Dept. 301-0, N. S. Simmons; Dept. 333-2, V. L. Pickering; Dept. 344-3, H. C. Allison; Dept. 378-1, C. T. Shea; Dept. 380-2, B. S. Jaeschke; Dept. 461-0, W. R. Bure; Dept. 673-0, J. H. Evans; Dept. 731-0, M. D. Wolfe; Dept. 783-0, Carl Lindsey.

Ten-year: Dept. 130-1, D. E. W. Dunn, Robert Loeper; Dept. 250-5, G. L. Zuniga; Dept. 335-2, L. H. Stevenson Jr.; Dept. 373-1, C. M. Horton; Dept. 377, W. B. Gorham, C. A. Lab; Dept. 756-0, J. R. Bowles, W. S. Sowa; Dept. 811-1, D. V. Colt; Dept. 831-1, M. C. Hight; Dept. 955-0, G. A. Lefebvre; Dept. 971-5, J. E. Beebe.

ALTUS AFB

Fifteen-year: Dept. 617-7, M. B. Cottrell.

DYESS AFB

Ten-year: Dept. 618-2, Jack Stanger.

SYCAMORE

Ten-year: Dept. 573-3, W. H. Jillard, K. R. Shultz.

VANDENBERG AFB

Fifteen-year: Dept. 576-2, J. B. Braziel.

WALKER AFB

Twenty-year: Dept. 619, R. E. Gumtz, W. B. Watkins.

Ten-year: Dept. 619-4, M. V. Chenault.

Promotions

MAIN PLANT

Promotions to or within supervision effective Sept. 24.

Dept. 110-0, Contracts: To contract administrator, E. R. Joos.

Dept. 140-1, Reliability Control: To reliability control administration asst. supervisor, S. W. Bobrowski, E. Engelman.

Dept. 145-0, Reliability Control Engineering: To reliability group engineer, W. G. Bjornson, G. L. Stiehl Jr.

Dept. 147-0, Reliability Control (SLV): To chief of quality control, project, J. Q. Friend.

Dept. 148-0, Reliability Control (AWS): To chief of quality control, project, G. E. Briggs.

Dept. 170-4, Organization and Systems: To clerical asst. supervisor, M. B. Cain.

Dept. 320-0, Support Engineering: To support publications supervisor, T. C. Neal.

Dept. 321-5, Support Systems Engineering: To trainer devices asst. supervisor, J. L. Saffer.

Dept. 322-5, Support Publications: To support publications asst. supervisor, A. L. Ward.

Dept. 372-0, AWS Design Engineering: To design group engineer, T. H. Buckley.

Dept. 376-1, AWS Design Engineering: To research group engineer, P. S. Yip.

Dept. 377-4, AWS Design Engineering: To asst. design group engineer, R. V. Madonia.

Dept. 538-7, Engineering Design: To asst. design group engineer, E. J. Popovich.

Dept. 850-0, Material Contracts and Services: To chief of material contracts, W. C. Clinton.

Dept. 964-3, Centaur Design Engineering: To asst. electronics group engineer, E. A. Nelson.

AFMTC

Dept. 571-1, GD/Astronautics Operations: To asst. flight test group engineer, J. L. Kettring. Dept. 681-0, SLV Launch Operations: To asst. site manager-base, H. C. O'Dell.

Deaths

MAIN PLANT

CRANE—Frances, Dept. 193-3. Died Sept. 27. Survived by husband, Donald.

McCLUSKEY—William T., Dept. 335-3. Died Sept. 27. Survived by wife, Carrie.

PLESE—Gregory G., Dept. 322-7. Died Sept. 14. Survived by mother, Mrs. Joyce France.

WALRUFF—Charles A., Dept. 578-0. Died Sept. 20. Survived by wife, Esther.

VANDENBERG AFB

WATKINS—W. B., Dept. 576-6. Died Sept. 22. Survived by wife, Vivian Louise.

WELLIVER—Graydon E., Dept. 576-3. Died Sept. 21. Survived by wife, Mildred.

Births

MAIN PLANT

HACKMAN—Daughter, Lou Ann, 8 lbs., 9 oz., born Sept. 23 to Mr. and Mrs. V. V. Hackman, Dept. 731-0.

POWELL—Daughter, Carmen Monica, 7 lbs., 14 oz., born Sept. 23 to Mr. and Mrs. John Powell, Dept. 378-1.

WALKER AFB

HUPRICH—Son, James Michael, 5 lbs., 11 oz., born Sept. 12 to Mr. and Mrs. James Huprich, Dept. 619-0.

Dynamics Appoints Two Vice Presidents

(Continued from Page 1)

ated and both men will be located at corporate headquarters in New York.

Heinemann, formerly executive vice president of Guidance Technology, Inc., is a veteran of more than 30 years in the aerospace industry. Prior to 1960, he had spent 28 years with Douglas Aircraft Company, 22 as chief engineer at the El Segundo, California division.

In 1958, he was named corporate vice president with responsibility for combat aircraft systems. At Douglas, he was responsible for the design and development of many aircraft used by United States and NATO forces, including the Navy AD Skyraider attack-bomber series, the latest of which is the carrier-based jet A4D currently in production.

Richardson, former president of The Stanley Works, New Britain, Conn., has a long background in the electronics field. He spent 26 years with Sylvania Electric Products, beginning as a test engineer in 1933. He was named director of industrial relations in 1946 and was made a vice president of the company in 1951.

He was appointed vice president in charge of engineering and research in 1953 and three years later became vice president-operations. In 1958, he was named senior vice president of Sylvania's Electronics Systems Division. He became president in March, 1961.

Expense Report Forms Change

New expense report forms (A-1515) go into use at General Dynamics/Astronautics Oct. 21.

At that time issue 4-59 becomes obsolete and issue 3-62 must be used in submitting all authorized requests for travel reimbursements.

Basic information required on both old and new issues is essentially the same, except the new form no longer has a time and labor section on the reverse side. Employees on travel status must now submit a separate form, "Weekly Time and Labor Distribution," to timekeeping for this purpose.

And it is no longer necessary to prepare a separate expense report for timekeeping. Only one copy of the report is to be submitted, although employees are urged to keep a separate copy for personal income tax purposes.

Employees are urged to double check all reports submitted for correctness of entries and information. Under a new accounting procedure, information contained becomes basic input material for computers.

General Dynamics NEWS

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More Science Classes Open

Two additional courses open to GD/Astro employees have been announced by educational services (Dept. 130-3).

Opening Oct. 22 for meetings from 5 to 6 p.m., Mondays and Wednesdays for an 18-week period is a free graduate level course in Atomic and Molecular Physics and Space Surveillance. Dr. Alex E. S. Green, space sciences manager, will instruct in Bldg. 17, room 10, at the main plant.

Prospective students (bachelor's degree prerequisite) have been asked to call Laura, ext. 1933 or 1934 to register.

Added to San Diego City College courses is a new class in Rocket Propulsion. This will meet from 6:30 to 9:30 p.m., Thursdays, at San Diego Evening College, 1425 Russ Blvd.

No advance registration is necessary as enrollment will be conducted at the first class meeting Oct. 25. Student Activity Card fee of $1 is charged.

Club Planning Dinner-Dance

"An Evening Cruise Aboard the SS OceanHouse" will be staged Oct. 20 by the Astronautics Management Club.

The "cruise" is a dinner-dance and the "SS OceanHouse" is the popular new Mission Bay hotel where the event will be held in the Fleet Room.

An outdoor (weather permitting) or indoor social hour from 7 until 8 p.m. will start the affair. Dinner will be served at 8. Dancing follows from 9 until 1 a.m. The Islanders will play for the pre-dance period, while Dan Hale and his orchestra will provide dance music.

Tickets for the affair, sponsored by industrial relations, went on sale this week at $4 per person. Only 700 tickets are available, due to house capacity.

This is not a closed meeting.

Medlock Manager Of Quality Control

L. I. "Russ" Medlock has been named manager of quality control at General Dynamics/Astronautics, reporting to P. I. Harr, director of reliability control.

Reporting to Medlock will be Sam Braun, chief of inspection—procurement, and J. F. Baebler, chief of inspection—factory.

R. J. Hendrickson continues as chief of quality control for product support and will report to Medlock.

Nicholson Named To Quality Post

R. H. Nicholson has been named chief of off-site quality control for the General Dynamics/Astronautics space launch vehicle program by P. I. Harr, director of reliability control.

Nicholson reports to W. J. Maloney, space launch vehicle reliability control manager.

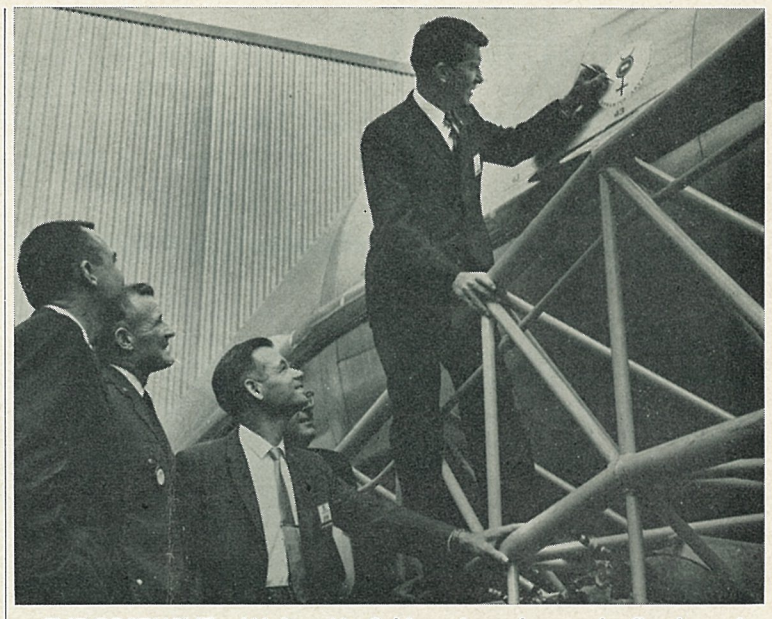
Movies Continuing On Hazard of Fire

If everyone were aware of the hazards, and of basic fire prevention techniques, one human life would be spared every 45 minutes! This is the current casualty toll, from fire, in the United States.

One step in disseminating this vital information is being made this week (National Fire Prevention Week, Oct. 7-13) by General Dynamics/Astronautics fire department.

Daily, today through Friday, movies on industrial fire hazards and fire prevention will be shown for all interested employees in GD/Astro fire station (Bldg. 6), from 11 a.m. to 1:15 p.m.

Fire Chief A. C. Anderson has invited employees to bring their lunches and attend the showings.



ENDORSEMENT—Walter M. Schirra Jr., who made flawless six-orbit flight around earth last week, is shown autographing Atlas missile (such as placed him in orbit) during visit to GD/Astronautics in San Diego.

Atlas Launch Perfect For Six-Orbit Flight

(Continued from Page 1)

manager (formerly test conductor), and an Astro crew. Fowler and his force also launched Astronaut Scott Carpenter. At Fowler's elbow was Thomas J. O'Malley, Astro launch operations manager (formerly chief test conductor), who launched Astronaut John Glenn. Between them the two, plus their Complex 14 crew, have launched every orbital flight in the manned flight program.

In a post-recovery ceremony Mortimer Rosenbaum, vice president—research, development and engineering, presented the astronaut's parents at San Diego with a replica of the turning key that started the flight.

Throughout General Dynamics Corporation, the flight was heralded as a great success. In addition to GD/Astro, other divisions had also contributed. GD/Electronics had built and installed the elaborate Mercury tracking board at Cape Canaveral. Other divisions had participated in other ways.

In true Navy tradition, Commander Schirra radioed from his capsule bobbing in the Pacific to the recovery ship USS Kearsarge: "Permission to come aboard requested."

SAC Accepts More Complexes In Ceremonies at Lincoln AFB

LINCOLN AFB — With minimum fanfare, Strategic Air Command forces here have accepted the second series of Atlas-equipped, silo-based launch facilities to be delivered within the past three weeks.

Elements of SAC's 818th Strategic Aerospace Division received the facilities in turnover ceremonies here from Ballistic Systems Division of the Air Force Systems Command. Acting for the latter was Col. William E. Ruark, SATAF commander here, and former SATAF commander during activation of Atlas facilities at Forbes AFB, Kan.

Ceremonies were held Oct. 1.

On Sept. 13 similar facilities were delivered at Schilling AFB, Kan.

Thus, SAC has received 24 (12 per base) launch complexes in which series "F" Atlas missiles are stored in silo or underground installations until ready for firing, when they are raised to the surface. With each squadron activated, SAC also received elaborate service facilities.

General Dynamics/Astronautics has served as prime contractor for the entire weapons system with base activation forces guiding the installation and checkout of equipment involved, including the missile.

In addition to series "F" facilities delivered, GD/Astro has delivered semi-hard or "coffin" facilities at Warren AFB, Wyo., Forbes AFB, Kan., and Fairchild AFB, Wash. Warren and Offutt AFBs were equipped with "soft" or above ground launch and service facilities for the series "D" Atlas. Combination operational and training Atlas facilities were also delivered at Vandenberg AFB, Calif.

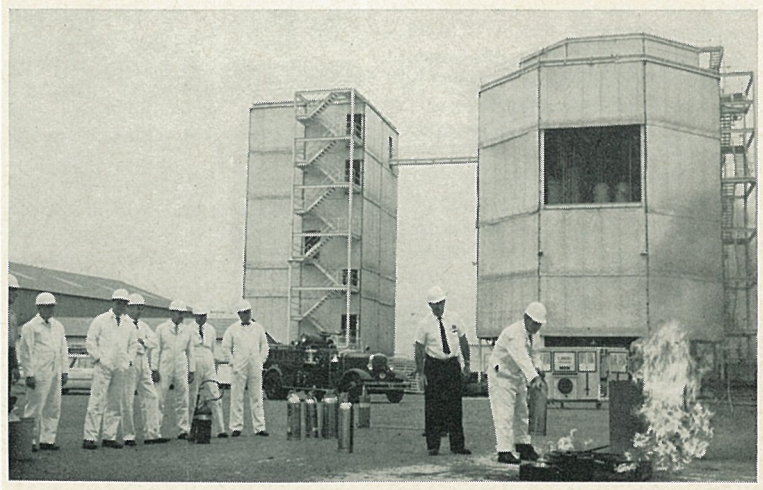
Four series "F" bases are still in activation stages, with completion scheduled by the end of this year. They are at Altus AFB, Okla., Dyess AFB, Tex., Walker AFB, N.M., and Plattsburgh AFB, N. Y.

Single Adult's Club To Gather Oct. 27

A "Full House" party-dance has been scheduled by ARA Single Adult's Club for 8:30 p.m. Oct. 27 at ARA Clubhouse.

On tap will be dancing, prizes, contests and refreshments. Music and entertainment will be provided.

Admission is 50 cents per person, with an Astro "ID" card. All single persons 21 and over are invited.



QUICK DOUSE—Under watchful eye of fire dept. Lt. G. C. Brown, one of first trainees in fire fighting auxiliary force of disaster control unit at GD/Astronautics extinguishes blaze. Fifty members of group are receiving four hours of instruction, including actual use of every type of equipment in use at Astro. Helmets, with decals, will become part of uniform.

Electronic Parts 'Pelletized,' Shrinking Size of Assemblies

"Electronic microminiaturization with potential for automated assembly" is a big thing at General Dynamics/Astronautics.

This multi-syllabled mouthful means simply that a double-headed threat is in store for conventional electronic assembly with its numerous parts in various sizes and shapes.

It means an assembly as big as an office desk may shrink to the size of a shoebox, and that tedious point-by-point soldering methods of assembly may give way to numerically controlled machine techniques.

Heart of this growing concept of electronic assembly is the "pelletized circuit."

In this approach, various electronic parts—capacitors, resistors, transistors, diodes, transformers, etc.—with sizes and shapes formerly as varied as their names, have taken on a uniform configuration.

They now appear as tiny pellets—.062-inches thick and .100-inches in diameter—regardless of function and characteristics.

Although GD/Astro is not alone in exploring the pellet concept, because of long experience and leadership in the field it is one of the first to utilize a full "family" of pelletized components.

Pelletized electronic studies are carried on in GD/Astro's electronic research (Dept. 592-5) headed by G. L. Mealey, chief.

Design Specialist Urho Hammer spearheads development efforts, working closely with Frank Unmack (Dept. 290-1) in the study of manufacturing applications.

In pelletized circuit assembly, the appropriate pellets (resistors, capacitors, etc.) are simply inserted in holes drilled in a supporting board (substrate). Before pellet insertion, grooves are milled in the board faces to connect various holes.

With the pellets in place, the grooves are filled with conductive cement, thus making every electrical connection at one time! Excess cement is ground off, a protective coating applied, and the circuit is complete.

In addition to such obvious advantages as high reliability, and reduced size and weight, the pellet packaging method is seen as adaptable to a wide range of uses, and is compatible with the most advanced electronic microminiaturization techniques.

As automated production becomes widespread, an "unplug the old, plug in the new" maintenance philosophy will be feasible, as costs will be reduced comparable to other methods.

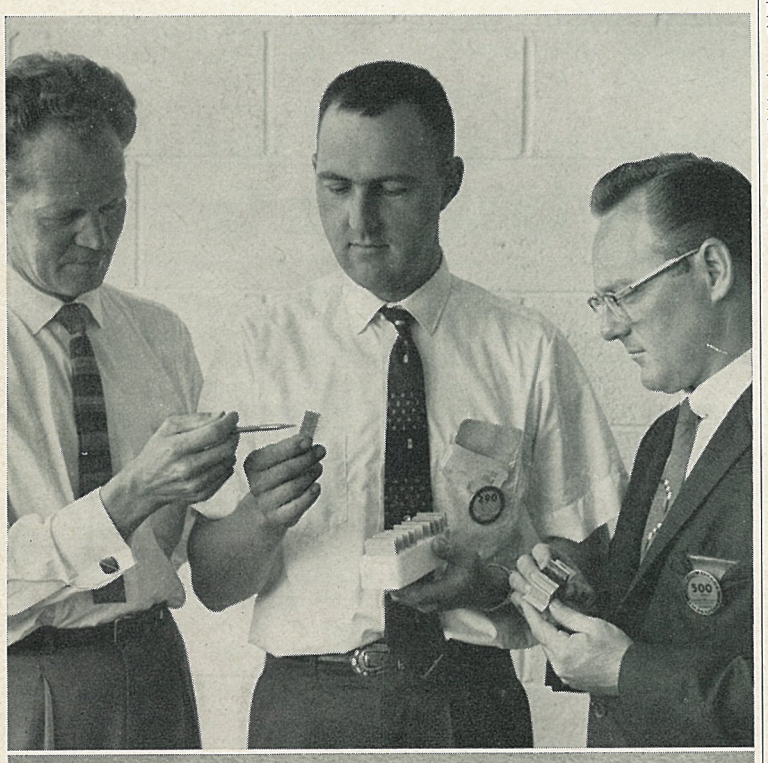
(At present, repair is easy: if a pellet fails, it is simply punched out of the substrate and a new one is cemented in its place.)

Unmack's studies of automatic assembly methods call for a computer battery (including the Stromberg-Carlson 4020 Data Processor and Printer) to work from a design program in producing numerical control tapes, drawings and printed information.

An automatic machine (now in the proposal stage) will work from numerically programmed instructions to prepare substrates, and load them with appropriate pellets.

The GD/Astro group is presently preparing two data processing component systems for Air Force and Navy use, and is in close liaison with General Dynamics/Electronics at both Rochester, N.Y. and in San Diego in applying the concept to advanced products.

Use of pelletized circuits in some GD/Astro electronic products is anticipated by mid-1963.



DIME SIZE—In top photo GD/Astro's Urho Hammer points out details on finished electronic substrate held by Frank Unmack. At right is George Mealey, GD/Astro chief of electronic research. In lower photo, tiny boards drilled to receive pelletized parts of uniform size are compared in size to a dime.

Waters and Doyle To Deliver Talks

Two GD/Fort Worth employees are slated to speak before meetings in Fort Worth in October.

Dan Waters, division controller, will speak on "Budgeting, Forecasting, and Profit Planning" before the National Association of Accountants at 7:30 p.m., Oct. 18, at Worth Hotel.

A speech on "Value Engineering" will be delivered by C. W. Doyle, GD/Fort Worth spares value engineer coordinator, before the National Office Managers' Association monthly meeting at 5:30 p.m., Oct. 23, at Worth Hotel.

GD/Electronics at Rochester Developing System to Classify Underwater Sounds

A passive aural classification system for use on submarines is being developed by General Dynamics/Electronics — Rochester, N. Y., under a contract awarded by the U. S. Navy's Bureau of Ships.

The system is designed to help submarine sonar operators classify the sounds they hear through the ship's hydrophones. Using it, they can determine which sounds represent enemy ships and which are caused by fish, surf, or other marine phenomena.

The system is an outgrowth of research in target classification by means of underwater sound which has been in progress at Rochester for more than four years. The company's 400,000-gallon sonar test tank is used for the research.

Under the new contract, which is for $59,656, GD/E will build a prototype model of the passive aural classification system for evaluation and testing by the Navy.

Hotel Agreements Win Discounts For Dynamics Travelers

Special rates with Pick Hotels Corporation and Hilton Hotels and Inns throughout the country have been arranged for General Dynamics people traveling on company business.

Contracts with the two firms are part of General Dynamics' "Volume Purchasing Program" which currently involves nearly 70 different agreements covering multi-million-dollar procurement of materials and services which GD divisions use in common.

W. G. Evans, corporate director of materiel, predicted that the new agreements, if properly used by Dynamics travelers, will save a substantial amount through reduced rates. The entire Volume Purchasing Program, which has been in effect for a number of years, covers a wide range of commodities and represents a vast saving to the company every year, Evans reported.

"Obviously, much more attractive prices on many items can be negotiated when the potential volume of all General Dynamics' requirements is combined," Evans pointed out.

The arrangement with Pick Hotels and Hilton were negotiated by GD/Fort Worth, under an assignment from the corporate materiel office.

GD/FW Purchasing Agent Robert C. Ruddell reported that the Pick Hotels contract calls for a standard 10 per cent discount from standard rates. In addition, free reservation service for any hotel in the chain can be made from Chicago, New York, Washington, Atlanta and Milwaukee.

A maximum guaranteed rate is provided by the contract with Hilton Reservation Service.

"Based on previous reservation experience, we feel that this contract will result in a reduction of about 18 per cent from the rates normally charged."

Under the Hilton contract, all GD divisions have been assigned direct telephone lines through which they may make reservations free at any hotel in the Hilton chain.

"Every effort should be made to use these agreements," Ruddell said. "This can be done through your traffic department reservation service."

Pick Hotels are located at Birmingham, Chicago, Cincinnati, Cleveland, Columbus, Detroit, Evanston, Flint, Minneapolis, New York, Pittsburgh, St. Louis, South Bend, Toledo, Topeka, Washington, D. C., and Youngstown, Ohio.

Hilton Hotels are located at Albuquerque, Atlanta, Aurora, Ill., Boston, Buffalo, Chicago (2), Cincinnati (2), Cleveland, Columbus, Dallas, Dayton, Denver, Detroit, El Paso (2), Hartford, Houston, Los Angeles, Beverly Hills, New Orleans, New York City (3), Pittsburgh, San Francisco, Seattle, St. Louis, Tarrytown, N. Y., Washington, D. C., Montreal, and Honolulu.

IRE to Hear Talk On Apollo Program

General Dynamics/Pomona employees are invited to a talk on the Apollo space program Oct. 17 at Dinnerhorn Restaurant, Covina, Ray Shields (Dept. 6), GD/Pomona representative of Institute of Radio Engineers, announced.

J. A. Corvi, assistant chief of the Apollo program for North American Aviation, will review the mission and mechanization of Apollo program together with space technology environment for the lunar operation.

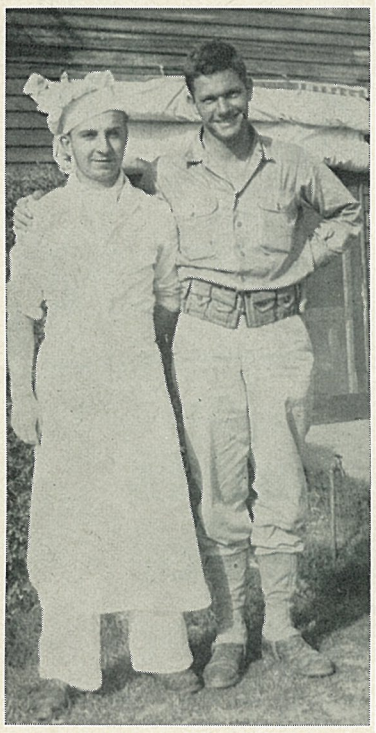
ARRIVAL—Air Force C-130A transport from Patrick AFB, Fla., is greeted by GD/Convair team on touch down right on minute, 10:34 a.m., Sept. 24. It will be in experimental 30 days from arrival for installation of new-type directional airborne antenna receiving system being developed for AF by GD/Convair.

A 'Cook's' Tour

GD/FW Man Reunited in Europe With Friend He Knew as POW

A friendship with a former German prisoner of war led to a two-week "cook's" tour of Europe recently for W. K. Browne, Dept. 24-1, GD/Fort Worth.

Conducting the auto trip across the continent was J. H. Seidel, a German who was captured in North Africa in 1943 and later sent to a POW camp at Donaldsville, La. It was here in 1946 that Browne, then a GI on special duty, befriended him.



REUNION — GD/FW's W. K. Browne, Dept. 24-1, is at right as he appeared in 1946 photo with German friend, J. H. Seidel, then serving as chef. They were reunited on tour of Europe recently.

Seidel, whose father was ousted from a government post in pre-war Germany for opposing Naziism, became mess sergeant at the Louisiana camp mainly because he could speak English.

"So you can see why he promised me a 'cook's' tour if I would come to Germany after the war," Browne said.

Driving Seidel's German-made Ford (a compact model), the twosome visited Holland, Belgium, Paris, Nice, Riviera, Italian Riviera, Genoa, Monaco, Milan, Switzerland and Austria.

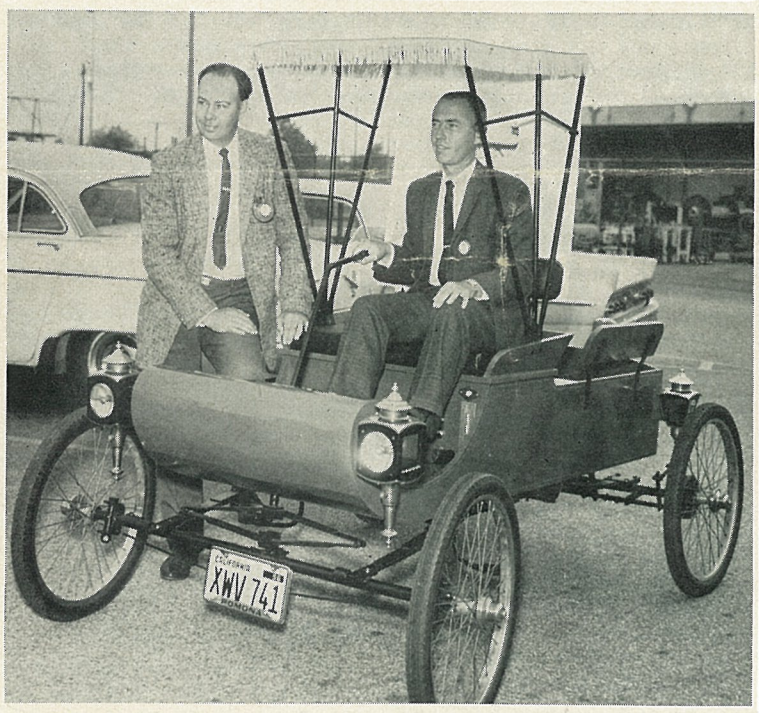
"We were able to get along in all countries, since Seidel speaks English, German, Greek, Russian, Italian, and French!" Browne said.

A highlight was visiting Berchtesgaden, Hitler's retreat, still showing hits from artillery and small-arms fire.

"But most of the towns in Western Germany that had been hit hard by war have been rebuilt," Browne reported.

The tour ended at Seidel's home in Dillich, a small town in central West Germany, just across the border from where Seidel made his escape from East Germany in 1949.

Seidel's wife and two children watched the family general merchandising store while he and Browne made the tour.



1901 OLDS—Replica of early-age motor vehicle attracted much attention as it was being parked at GD/Pomona by builders J. J. Eirich, left, and W. C. Dysart (both Dept. 6). Two years of spare-time work and $650 in materials went into project.

Two-Year Job of Building Auto Of 1901 Vintage Ends: Cost, $650

Two General Dynamics/Pomona employees have built a 1901 Oldsmobile—complete with fringe on top. Two years of spare time work and $650 in materials were required.

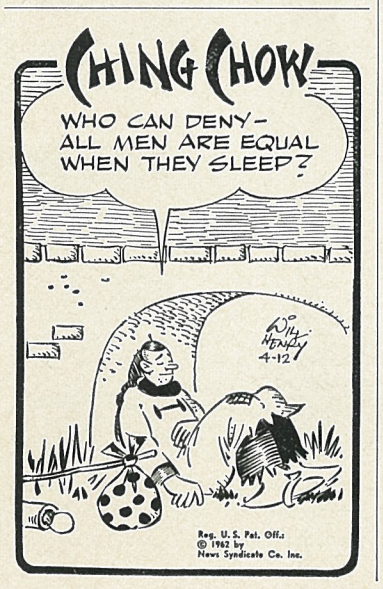
W. C. Dysart, component test laboratory, and J. J. Eirich, Red-eye project office (both Dept. 6), started by obtaining plans (cost $5). Working in Dysart's garage, they cut out the steel parts using 4 dozen hacksaw blades in the process. All wood parts were made by hand.

Purchased parts include head lamps, wheels, Clinton engine, Cushman transmission and 26x-2 25-inch tires.

While authentic in appearance the replica has some features never dreamed of in 1901. To meet motor vehicle code regulations, the two auto manufacturers had to provide modifications.

Sealed beam headlights, directional signals, stop lights and brake lights were added to the 400-pound vehicle. The state calls it a 1962 model (year manufactured).

The 1-cylinder 4-hp engine develops speeds up to 25 mph. Two speeds forward and one reverse are provided. Gas mileage experiments are in process with 60 miles per gallon expected.



Convair Son Sleeps With Padres Bat

Little Stephen Carter, going on 5, had the thrill of his life when he came home from his first big-league ball game recently with a real honest-to-goodness Padres bat.

The bat, a damaged one used by Chico Ruiz, Padres shortstop, became Stephen's most prized possession (and sleeping companion).

He was given the bat at one of the closing games of the season when his father, Bill Carter of GD/Convair motion picture section, took him down on the playing field to let him "touch" home plate.

Divisions Join To Form Value Control Group

Six General Dynamics divisions and the Corporation's Canadian subsidiary will join to establish a GD Value Control Committee, E. W. Feddersen, GD director of manufacturing engineering, has announced.

Value engineering experts from these divisions will meet at San Diego next month, Nov. 12-13, to organize a central committee for the purpose of fostering better planning for value programs, exchange of ideas, and shortening of lines of communication through personal contact.

Invited to the GD/Convair-hosted session are H. P. Williams of GD/Convair, E. D. Heller of GD/Pomona, George Robertson of GD/Astronautics, W. E. Emish of GD/Fort Worth, M. M. Reeder of GD/Electronics, F. Kohrs of GD/Electric Boat, and W. W. McKenzie of Canadair Limited.

Scientist, Engineer From GD/FW Honored As Paper Accepted

"Specification and measurement of reactor neutron spectra," a paper co-authored by Dr. John Romanko, staff scientist, and, Warren E. Dungan, senior nuclear engineer, of GD/Fort Worth's nuclear laboratories, has been accepted for presentation by International Atomic Energy Agency in Vienna, Austria.

Dr. Romanko will present the paper at the symposium on "neutron detection, dosimetry and standardization," to be held the week of Dec. 10 at the Rutherford High Energy Laboratories in Harwell (Berkshire) England.

United States participation in this international conference was arranged by the Division of Special Projects of the Atomic Energy Commission, which coordinated participation. Selection of papers for presentation was made by IAEA.

Many nations have been invited to participate, with papers to be given in four languages: English, French, Russian and Spanish.

Data Assoc. Elects Bond and Krinitsky

Two General Dynamics men hold offices in the San Diego Chapter of Data Processing Management Association, following recent election of slate for the coming term.

Roy Bond of General Dynamics/Electronics data processing is national director and Harold Krinitsky of GD/Astronautics test evaluation is a member of the board of directors.

Newly-elected president of the organization, formerly known as the National Machine Accountants Association, is William Simons, chief of data processing for Ryan Aeronautical Co.

Save Material—Don't Throw Your Job Away!

SWEET DREAMS — Sleeping five-year-old Stephen Carter is snapped by father, Bill (GD/Convair Dept. 16-4), as he cuddles beloved Padres bat.

'Resources Economics' Section Eyes GD/Convair Power Costs

GD/Convair's annual electrical bill would keep about 3,500 homes well-heated and lighted for a year, at least in Southern California temperatures.

It costs the division over $1 million yearly to keep the machinery turning at Plant 1, Rose Canyon, and the ramp, pointed out Vern Sharp, chief of maintenance and construction, as he urged everyone to join in the battle on electrical costs.

Major factors in high usage of electricity are production machines, office machines, wind tunnel apparatus, lighting and air conditioning equipment. An average machine tool, such as a No. 5 or No. 6 milling machine in production machine shop uses over $200 worth of electricity a month.

Sharp listed several ways in which everyone can help keep down the expense:

1. Keep doors closed, as much as possible, in all air conditioned areas. (It takes three tons of air conditioning to maintain pace with one door left open for a short time.)

2. Turn off all machines when not in use.

3. Do not turn on lights in an area where they are not needed, and turn off lights when the area is to be left unoccupied.

4. Use only lights and electrical devices absolutely necessary for evening or weekend tasks.

"Conservation is everybody's business!" he stressed.

"Cooperation of employees has been exceptional to date, but all things can be improved.

"Our present and future contracts have and will be won in a competitive atmosphere of low costs, exceptional engineering, and reliable manufacturing. As we all know, bid contracts are submitted on the lowest cost possible, and this means we must keep our overhead expense to the very minimum."

In the last nine months nearly $50,000 has been slashed from electric power costs through projects initiated by Resources Economics section of industrial engineering in cooperation with the Utility Survey Corp.

Elimination of unnecessary lighting throughout the division has shaved $15,000 from electrical bills; reduction of weekend and off-shift kilowatt consumption has saved $23,510 to date; cancellation of an electrical alternate service agreement is saving $1,087 a month.

Other projects are under study, said Sharp, who urged anyone with a suggestion for electrical power conservation to call Resources Economics Center, ext. 1640, Plant 1, or mail it to Vic Janusz, coordinator of Resources Economics, mail zone 23-30.

$30,000 Cost Cut Accomplished By GD/Astro in Utilities Area

Changes instituted in the operation of heating, ventilating and air conditioning systems at General Dynamics/Astronautics are expected to result in savings of almost $30,000 in the coming year.

Such savings could constitute a healthy portion of a goal of $200,000 GD/Astro hopes to realize in reducing utility costs currently topping a million dollars annually.

Automatic programmers have been added to heating and ventilating systems serving Bldgs. 1, 2, 3 and 4. They shut off all systems at pre-set times. Plant engineering personnel handle the same assignments in other areas. Thus, unless these systems are required, they are shut down.

Resulting savings are shown in electricity required to operate such units as fans, pumps, etc. This savings will be over $15,000. Other savings are shown in reduction of natural gas required to operate boilers. This is calculated at about $14,400 for the next year.

Studies are now being made of all air conditioning units to determine possible areas where savings can be realized. A practice of shutting down all units promptly at the close of shifts is being followed.

Astro employees working in air conditioned areas can aid the effort greatly by seeing that all doors and entrances are kept closed at all times.

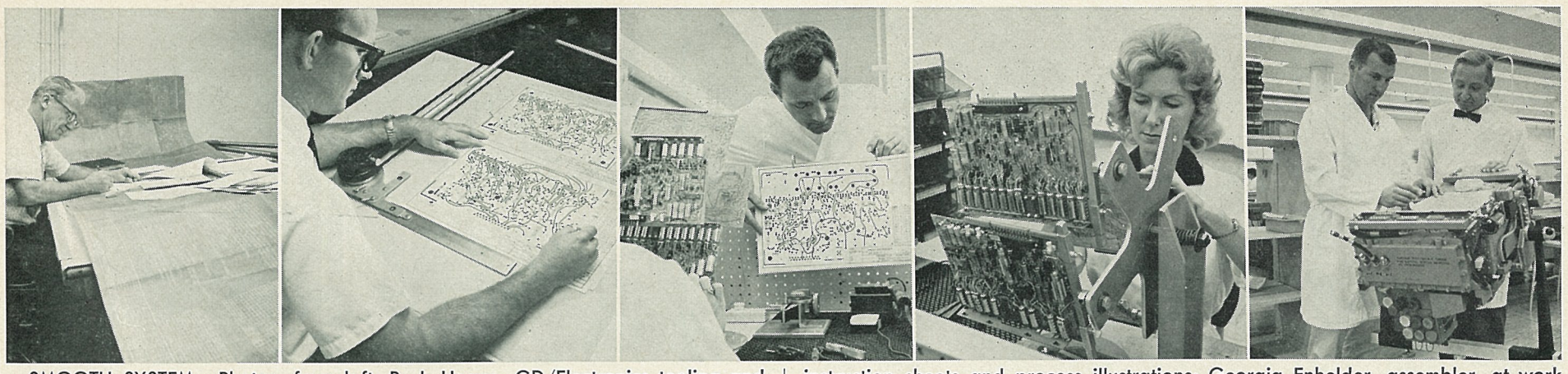
All Five JAL 880s at Work

All five of Japan Air Lines' Convair 880-Ms now are in service over the airlines' world-wide routes, following arrival in Tokyo of the last airliner early last month from San Diego where it had been in JAL pilot training.

Jerry Dugan, GD/Convair field service representative with JAL, reports that 880-Ms are scheduled for two daily round trips, Tokyo to Sappora; one round trip a day, Tokyo to Fukuoka; five round trips each week, Tokyo to Hong Kong; three round trips a week, Tokyo to Djakarta; and two round trips every week between Tokyo and London.

Inauguration of the Tokyo to London "Silk Road" flight was set for Oct. 4 following a proving flight on which Court Zeiss, GD/Convair rep, accompanied the crew.

Stops en route are at Hong Kong, Bangkok, Calcutta, Karachi, Kuwait on the Persian Gulf, Cairo, Rome, Frankfort, London, and return.



SMOOTH SYSTEM—Photos, from left: R. J. Hogue, GD/Electronics tooling and planning analyst, at San Diego, interprets blueprints to break down production task; F. L. Letzring Jr., illustrator, draws process sketches for placing components, each spelled out by color, bins, quantity, part numbers; R. L. Helton, planner, attaches instruction sheets and process illustrations; Georgia Enhelder, assembler, at work station; finished assembly, a modulator, signed off in final inspection by Darwin Olson with George Patrick of production engineering watching. Sequenced and concentrated system cuts costs, increases reliability.

Sports Car Leaders Of GD/Convair Speak

Two sports car experts of GD/Convair were heard on the radio program, "Sports Car News," over station KFMX-FM last month when they were invited to explain sports car activities of the division and the community.

Tom Kienholtz, president of the San Diego Council of Sports Car Clubs and winner of last year's "Sportsman of the Year" award, spoke Sept. 5. He described the function of the Council—its purpose, membership, and responsibilities relative to championship event codes.

H. W. Callihan, vice president of the CRA Sports Car Club, appeared on the same program Sept. 15 to outline the history and activities of the Convair group.

Wives' Auxiliary Will Lunch Oct. 17

Astro Wives' Auxiliary will hold its monthly luncheon meeting Oct. 17 at Rose Mandarin Garden, 8552 La Mesa Blvd., La Mesa.

Social hour opens the event at 11:30 a.m., with luncheon at 12:30 p.m. Special guest speaker is Gil Hutter, Prophet Co. cafeteria manager at GD/Astronautics, who will give a cake decorating demonstration.

Reservations may be made with Mrs. Louis Ferriera, BR-3-7634, through Oct. 15. Wives of all GD/Astro employees are welcome to take part in activities of Astro Wives' Auxiliary.

New Streamlined Assembly System Adopted by GD/Electronics at SD

A "containment" policy can be applied as effectively to limited production as to limited warfare, say General Dynamics/Electronics production engineers who have evolved a system which is streamlining assembly of electronic units at the San Diego facility.

The system, unique in that it confines all operations necessary for assembly of any one type of electronic unit to a designated production area, is designed primarily for orders of 100 to 250 units.

Sub-assembly is defined in terms of each operation to be performed, work station location, equipment and hand tools for each operation, plus the time required to perform each operation.

"This method replaces the former assembly method which requires an assembler to work directly from blueprints and stock lists without any idea of the assembling order or description of parts or where they should be placed," explained George Patrick, supervisor of methods, process specification, and production plans. "The sequenced method drastically cuts the amount of time involved in figuring out where to start and what to do next."

Production engineers sequence all assembly operations to provide minimum operation cycles and increased efficiency through specialization. Production areas are identified, divided into work stations based on 40-hour tasks. All parts used on a station are stocked in marked compartments in sequence ready for use. Production aids, holding fixtures, and special tools required for the task are located on-station. Personnel are assigned to these stations with attention to special training, talent, or abilities. Proper "personal" tools for each operator are determined and required. Tools that may damage parts are prohibited. All special tools are furnished by GD/E.

"We can credit this 'containment' type of production as a major step in placing GD/Electronics in a competitive position in the field of military electronics," said J. P. Morris, manager of production engineering.

"The operator is trained for one type of assembly. Thus, with all operations sequenced, she becomes thoroughly familiar with the particularities of the assembly and can achieve the highest level of consistency and quality."

J. H. Thompson, GD/E manager of operations, enumerated further advantages of the step-by-step concentrated method of limited production, namely, "lower unit cost, faster delivery, and higher reliability."

Detailed operation sheets together with graphic illustrations spelling out each assembly step set the system into motion.

"Production engineers work directly with operators at the work stations, helping them to understand perfectly all instructions and incorporating improvements suggested by operators themselves if they find a more efficient step in the paperwork or sequencing. Planners are assigned to each type of 'black box' to maintain all stations assigned to its manufacture," said Patrick.

GD/Convair Clubmen Are Pomona Guests

Four officers of the GD/Convair Management Club were special guests of the GD/Pomona club at its Sept. 14 meeting.

L. G. Lawson, past president, attended in his official capacity as president of San Diego Area Council of NMA. E. R. Fink, GD/Convair Management Club president, also was present, together with Paul Hamm, first vice president, and Ralph Montgomery, second vice president.

GD/Astro Folk at Vandenberg Boast Varied Sports Program

VANDENBERG AFB—Another season is under way here for what is probably one of the most active ARA-sponsored recreational programs operated for off-site personnel within General Dynamics/Astronautics.

This installation began its recreational program almost as soon as enough employees were on hand to form a bowling team. Since then it has continued to grow, both in participation and the number of activities available to Astro families.

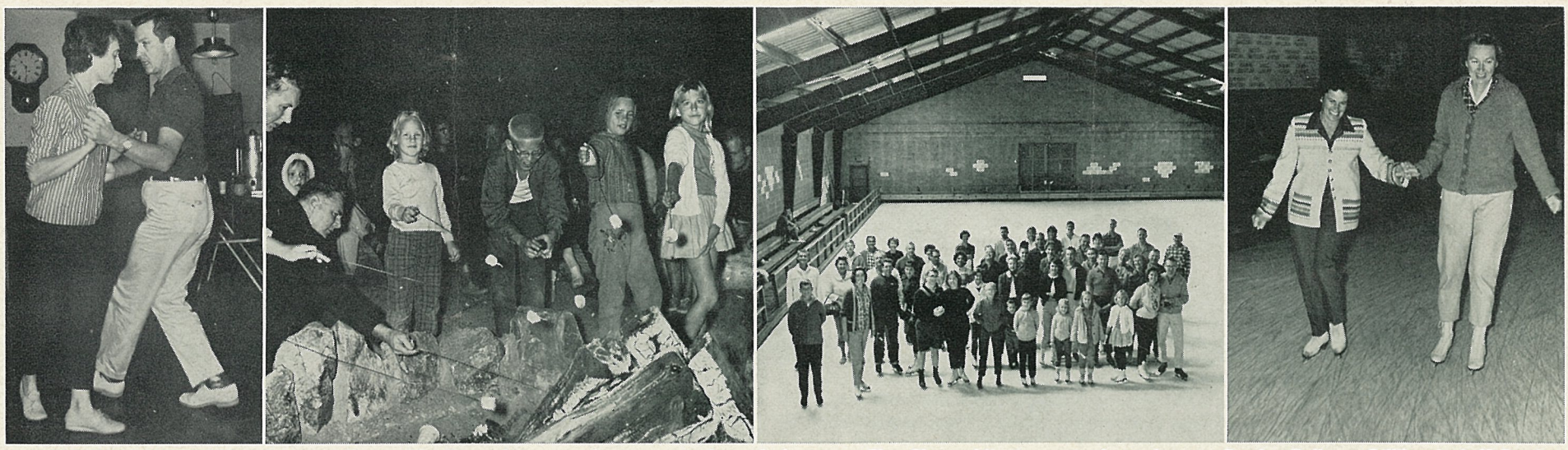
Ross Workman, employee services representative here, is a key man behind the program. A Certified Industrial Recreation Administrator, one of two at Astro, he has guided the program for a number of years.

The ARA Employees' Council here guides all activities. Current officers are E. C. "Gene" Sims, president; E. A. "Ernie" Millar, vice president; A. B. "Augie" Daddi, treasurer; and C. A. "Arlene" Barnell, secretary. Council members include M. R. "Don" Wilson, bowling; D. M. "Don" Jardee, boat club; James Batson, golf; R. L. "Pete" Peterson, softball, Sam McCullum, basketball; and two acting commissioners, Katherine Goin, horseback riding, and Leo Bernitz, rod and gun club.

Aiding the program are natural surroundings featuring hiking, swimming, fishing, hunting, etc. as well as bowling and other sports. Both the cities of Lompoc and Santa Maria welcome Astro participation in civic recreation programs.

Planned for this fall is the annual all-Astro picnic which takes the form of a clam bake at Pismo Beach this year for the first time, Workman said.

AROUND ASTRO BASES—GD/Astro folk at Vandenberg AFB have been among most active in recreation programs off-site. (1) Ross Workman, right, employee services, checks golf handicaps with Otis Tucker and Marilyn Murray; (2) and (7) are photos of Vandenberg basketball team that will see action this fall; (3) golfers turn in cards for sweepstakes; (4) deep sea fishing out of Morro Bay is popular with VAFB people; (5) 1961 bowling trophy winners. (6) Craig Bramley of industrial relations at Walker AFB presents new bicycle to Alonzo Orosco whose old bike was washed out in a truck collision. Alonzo suffered minor injuries. (8) Walker AFB Astro Wives Club held style show recently. Among models were, from left, Donna Magee, Karen Mooney, Marilyn Mooney, Cleo Magee.



MOUNTAIN WEEKEND—Autumn trip to Big Bear drew good representation of GD/Astro, GD/Electronics and GD/Convair folk. Sponsored by ARA-CRA Ice Skating Club, weekenders did more than skate. At left Bob and Peggy Clauser demonstrate Cha-Cha, while in next photo Jeanne Davis, Colleen Gilliland, Jeff Davies, Kim Gilliland and Pam Chana toast marshmallows. At far right are Esther Germeraad and Jeanne Davis.

Dynamics Sailplane Pilots Will Compete at Elsinore

General Dynamics soaring enthusiasts will be among San Diego entries competing in weekend events Oct. 27-28 at Skylark Airport, Elsinore. The fall soaring meet is co-sponsored by Convair Recreation Association Glider Club and the Associated Glider Clubs of Southern California, Ltd.

Contestants and meet officials will include Walter Mooney of General Atomic; Duke Stallings, CRA Commissioner Gene Whigham, and Paul La Frenier of GD/Convair; Gene Cain, A. J. Owens, Oakley North, J. W. Petre, and Sterling Starr of GD/Astronautics.

Approximately 20 pilots are expected to compete, said Whigham, with 10 to 15 sailplanes anticipated.

Saturday's task will be for maximum distance flying. Sunday's event will be a race horse start speed dash around a triangular course. Prizes will go to pilots making the three best flights each day. Scoring is on a handicap basis.

"Elsinore fall weather is pleasantly warm and just right to provide many thermals for good gliding," said Whigham, who emphasized that spectators are invited to attend.

A dinner meeting Saturday evening will feature movies and slides taken during the National Soaring Contest at El Mirage in August.

Check of Payroll Stubs Urged to Bare Inaccuracies

General Dynamics/Astronautics employees everywhere are being asked to check their payroll check stubs this week for correct address and Social Security entries.

Division records show many employees to have incorrect addresses and in some cases no addresses. The same holds true for Social Security numbers.

Shortly after the first of the year 1962 Federal Withholding Tax Statements (Form W-2) must be prepared for all employees and the information mentioned must be obtained for correct delivery. Too, incorrect Social Security numbers prohibit Astronautics from making proper application of taxable wages to the Social Security Administration.

Here's the correct procedure to follow:

Addresses that are incorrect or do not show can be corrected by completing a "Change of Address" (Form 14449 CZ) card available at all time clocks or through timekeepers. These are to be forwarded to financial accounting, mail zone 191-02, at the main plant.

Incorrect or no Social Security listings should be reported directly to the employment section of industrial relations, mail zone 130-6, at the main plant. Include both the number now appearing on the check stubs and the correct security number.

Salvage Yard Sked

Salvage yard schedule for next four weeks:

GD/Convair—Oct. 13, 27.

GD/Astro—Oct. 20, Nov. 3.

Reliability Control Appointments Made;

Appointments within the General Dynamics/Astronautics reliability control department have been announced by P. I. Harr, director of reliability control.

A. J. Woodington has been named manager of standards and calibration laboratories, reporting directly to Harr. In his job Woodington will have responsibility for all Astronautics calibration activities which are now consolidated under reliability control.

Three assignments within the Atlas weapons system (AWS) organization have been announced with all reporting to D. R. Archibald, AWS reliability control project manager.

Named quality control chiefs were G. E. Briggs for checkout and acceptance and R. E. Steele for off-site activities. I. E. Wissner heads administration and audit functions in the AWS reliability program.

Slide Show Repeat Set For 2nd Shift

A slide show from the American Numismatic Association will entertain members of Coineers, ARA coin club, meeting, at 7:30 p.m., Oct. 17 in ARA Clubhouse.

A second-shift club unit will view the show at 1:30 a.m., Oct. 18, when a business meeting, display competition and swap session are planned.

A display competition, as well as a coin auction, is also slated for the first shift meeting.

GD/Astro Hams To Hear Evans

Under direction of Club President Bill Hemingway, ARA Radio Club is presently compiling a directory of licensed amateur radio fans employed by GD/Astro.

To date, Hemingway's listing stands at over 120 "hams." He has asked licensed amateurs who feel their names and radio call letters have not been included to contact him at main plant ext. 2670.

At its meeting at 7:30 p.m. tonight (Oct. 10) the club will feature Clifton Evans (K6BX) as guest speaker, internationally known in radio circles for his numerous publications on electronics, and for his monthly directory of amateur radio awards.

ARA Camera Club

ARA Commissioner Ken Rinker has announced a change of program for next meeting of Astro Lens, ARA camera club, slated for 7:30 p.m., Oct. 21 in Photo Arts Building, Balboa Park.

Now on the agenda instead of a monthly contest for points, is a workshop program featuring multiple exposure techniques.

Garden Clubs Set Show Date

Garden Clubs from GD/Convair and GD/Astronautics join forces Nov. 4 to present their annual Fall Show at the Floral Association Building, Balboa Park.

Commissioners Eugene Zimmerman (CRA) and Everett Henderson (ARA) have announced eight divisions, with a best of show award for each, as well as from two to six classes in each division.

Chrysanthemums, arrangements, corsages, roses and children's division events will be featured.

In Division One will be single chrysanthemums, while Division Two will include three blooms, Division Three features cushion type pompons and Division Four, button mums.

Division Five will include six classes in arrangements. Division Six will handle corsage entries. Children will compete in two age groups, 5 to 11 and 12 to 16 years, in Division Seven. Division Eight will feature roses.

Entries will be accepted from 7 until 11 a.m. Judging follows at that time, with the show open to the general public without charge from 1 until 6 p.m.

Sr. Flight Test Engineer Dies

Funeral services for C. A. "Charlie" Walruff, senior flight test engineer at GD/Astronautics, were held Sept. 26 in San Diego. Walruff died unexpectedly Sept. 20 while attending a physical education class at San Diego State College.

Walruff joined Astronautics in 1956 after retiring from the Navy as a commander the previous year. He enlisted in the Navy in 1924 and moved into the commissioned ranks in 1942.

One of his early assignments at Astro was to help activate static test sites at Edwards RS and Sycamore Canyon. Recently he has coordinated reports between engineering staffs at the home plant and test bases.

During World War II King George VI cited him with the Most Excellent Order of the British Empire for development work in airborne radar techniques.

Don McClarren Tennis Winner

Ten members of ARA Tennis Club were represented in San Diego Industrial Recreation Council's tennis tournament which concluded last week.

Winner of men's consolation singles was Don McClarren, Dept. 522-2, who defeated Ron Geist, Dept. 145-5, in a 4-6, 6-3, 6-1 match.

Last year's doubles champions in the event were Astro's Larry Chambers, Dept. 305-0, and Ben Cendali, Dept. 573-2. Teaming up again for this year's tussle, they yielded in the semi-finals to a Solar team who later captured the doubles crown.

CRA Car Club's Economy Run Won by Astro Driver Smith

Sweepstake honors in CRA Sports Car Club's September rally, the Eagle Eye II Economy Run, went to E. L. Smith of the Astro Sports Car Club.

Smith navigated the 160-mile course in his Alfa-Romero with a fuel consumption of 56.4 ton-miles per gallon.

Twenty cars drove the back-country route through Campo, Julian, Ramona, Lakeside, and back to San Diego in the all-day Sept. 30 rally, headed by Chase Allen as rally master.

Allen said that the efforts of Astro Radio Club members manning checkpoint control were invaluable.

Other winners were Clark Kerr Jr., best Convair Sports Car Club driver; Smith, best Astro club driver and first in Class A, displacement of under 1,300 cc; E. N. Yeaton of Astro, first in Class B, 1,300-1,599 cc; Martin Larson, first, Class C, 1,600 to 2,699 cc; Kerr, first, Class D, over 2,700 cc.

ARA Commissioner E. S. Penick topped the sedan class with performance of his '53 Studebaker coupe. Penick also stood second in overall scoring.

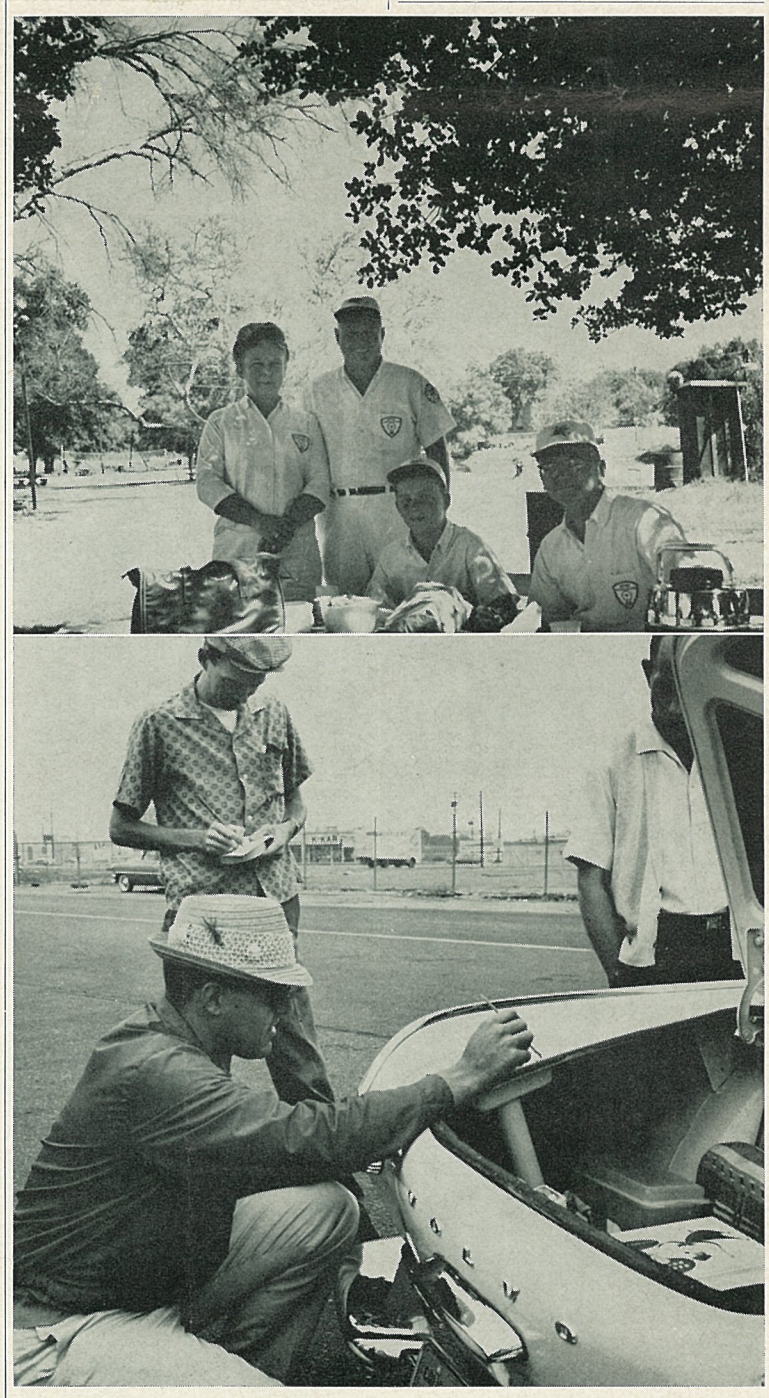
CYCLISTS INVITED FOR 'POKER RUN'

Invitations have gone out to cyclists throughout Southern California and Arizona to take part in an Astro Motors-sponsored "Poker Run" starting at ARA Clubhouse Oct. 21.

This is an invitational event expected to draw both individual and club participation.

Entries will depart from 9 until 11 a.m., then cover a 110-mile course laid out in San Diego County, returning to the Astro plant later for timing.

Next regular Astro Motors meeting will be at 7:30 p.m. Oct. 17 at the ARA Clubhouse.



"ECONOMY" DRIVERS—Upper shot catches overall winners of CRA Sports Club Economy Run, Mr. and Mrs. Elmer Smith of Astro, standing, and ARA Commissioner E. S. Penick and son, at Picnic Lake Park. Lower photo was taken at starting point with Dick Perkis of CRA club sealing gas tank of Martin Larson's Volvo while John McKay records technical inspection.

ARA Calendar

(GD/Astronautics Recreation Association has some 40 activities in operation for employees. For information, call ARA Headquarters, ext. 1111.)

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ASTRO LENS—Meeting 7:30 p.m., Oct. 21, Photo Arts Bldg., Balboa Park. Topic is multiple exposure techniques.

CHESS — Plant Championship opens 8 p.m. tomorrow (Oct. 11), ARA Clubhouse.

COINS—First shift meets 7:30 p.m., Oct. 17, ARA Clubhouse; second shift at 1:30 a.m., Oct. 18.

EXPLORERS—Field trip Oct. 13-14 to Spooks Canyon, San Marcos.

GOLF—ARA Sweepstakes, Bonita, Oct. 20-21. Applications at ARA Headquarters, ext. 1111, through Oct. 17.

MOTORCYCLE—"Poker Run" over 110-mile course starts 9-11 a.m., Oct. 21 from ARA Clubhouse. Astro Motors meeting 7:30 p.m., Oct. 17, ARA Clubhouse.

RADIO—Meeting 7:30 p.m. tonight (Oct. 10), ARA Clubhouse. Guest speaker.

SINGLE ADULTS — Dance-party 8:30 p.m., Oct. 27, ARA Clubhouse. Admission is 50¢ with Astro ID card.

STAMPS—Meeting and trading session, 7:30 p.m. tomorrow (Oct. 11), ARA Clubhouse.

WIVES' AUXILIARY—Luncheon meeting Oct. 17 at Rose Mandarin Gardens, 8552 La Mesa Blvd., La Mesa. Social hour, 11:30 a.m., luncheon at 12:30. Reservations by Oct. 15 with Mrs. Louis Ferriera, BR-3-7634.

McPherson's 294 Edges Sanderlin

G. B. McPherson fired a 294 out of a possible 300 to win first in Astro Pistol Club activities that are showing extremely close competition of late for all classes.

Trailing McPherson in the master class was Ralph Sanderlin with a 293. Mort Williams (288) and Don Smock (283) in the expert; Bill Winchell (260) and Les Vivian (259) in the sharpshooter; and Bill Worthington (234) in the marksman class also emerged as victors.

McPherson doubled by scoring a 287 in the short National, followed by Sanderlin with a 268 and Ronnie Legg with a 260.

Photorama Rally Will Be Featured

Planning for another of its popular Photorama Rallies will be featured at the meeting of ARA Sports Car Club at 7:30 p.m., Oct. 16 in ARA Clubhouse.

George Lahey will be rally master for the event slated Nov. 25, in which participants are guided through a rally course by driving instructions in the form of a set of photographs.

The meeting is open to all Astro employees and dependents, while employees of all General Dynamics divisions in the San Diego area will be welcome to take part.

Rockhounds to Talk About Field Trips

Field trips, past and present, will be discussed tonight (Oct. 10) at 7:30 when Astro Rockhounds gather at the ARA Clubhouse.

On the slate will be an October field trip to Trona for Death Valley onyx. Earl Manor will present a slide program involving Arizona petrified forests.

September door prizes were won by Bill Barto, Don Seitz, Bob Pettyjohn and Jim Sayler.

Junior Bowl Loops Offered Youngsters

Astronautics children interested in taking part in ARA-sponsored "small fry" bowling leagues may report at 10 a.m. Saturday to Clairemont Bowl.

Both boys and girls from 7 years through 18 are eligible. Those from 7 to the teens will participate in a bantam league. Teen-agers will take part in a junior league. Free instruction is offered.

Astro Skiers Meet Tonight

First meeting of the season for Astro Skiers, ARA snow ski club, will be held at 7:30 p.m. tonight (Oct. 10) in ARA Clubhouse.

All GD/Astro employees and dependents interested in this leading winter sport have been invited to attend by Larry Atwell, ARA commissioner.

On the agenda for the opening session is election of officers to guide club affairs throughout the season, and selection of a club candidate for queen of the annual San Diego Sno Ball next month.

Club members will be eligible for valuable gift certificates, one of which will be awarded as a door prize at each of the club's monthly meetings.

Club membership costs $1 per person, and entitles the holder to participate in all club functions. The group conducts ski trips to local snow areas throughout the season, and plans a four-day trip to a major skiing area over the New Year's holidays.

A variety of entertainment—including yodeling—is featured at business meetings. Refreshments are served.

Leads Assigned In Astro Play

Both "old timers" and new faces will appear before audiences attending ARA Astro Players production of "Roman Candle" when it opens for a six-day run in late November.

Director Dick Elbe has completed casting for the show, and rehearsals are under way.

Leading roles have been assigned to Dan McLaughlin and Joyce Crawford, with Jim Lakin and Nancyjane Holtz in major supporting parts.

Others in the cast include Art Wright, Joe Tricolli, Al Varone, Allen Paul, Charles Shoemake, Jim Schoff, Shirley McLaughlin and Julius Rose.

Lakin is the show's producer, with Milt Ball as production manager. Staff members include Varone, Elva Cambron, Rose Porter, Paul Porter, Tom Todd, Bob Thornton, John Streiff, Paula Hart, Millie Rankin, Genger Koger, Chris Nordenson, Jimmy Rankin and Miss Holtz.

Varied Card Games Will Mark Benefit

Bridge, canasta, pinochle or players' choice will be featured at this year's benefit card party to be sponsored by Astro Wives' Auxiliary at 8 p.m., Oct. 26 in ARA Clubhouse.

Proceeds will benefit needy San Diego area children, hosted annually at a Christmas party by ARA and Employees' Con-Trib-Club.

Tickets are available for donation of $1 from employee services outlets, Wives' Auxiliary members, and Mrs. O. C. Priest, benefit chairman, BR-7-2309, or Mrs. Donald Hatfield, ticket chairman, BR-3-2757.

Table and door prizes will be awarded.

Tickets For Hindu Dancers Offered

Some tickets for Uday Schanker Hindu dancers appearing Oct. 12 at Russ Auditorium may be available to GD/Astro employees and ARA Hi-Fi/Music Club members through Commissioner Ben Lachance, ext. 2324, or Peg Lewis, ext. 4013.

Ticket availability will be on a first-come, first-served basis.

At its meeting yesterday (Oct. 9) the club elected officers for the coming year.

SWEEPS SLATED AT BONITA LINKS

Starting times for October (20-21) golf sweepstakes slated for Bonita Golf Course are being accepted at ARA office, ext. 1111. Deadline for entering is Oct. 17.

HOME TEAM—Members of Astro softball team close ranks after winning La Mesa Invitational Tournament and ending season with 38-10 won-lost record. Hard-driving unit was edged from City League AAA championship in play-offs. Commissioner Forest Erwin is standing at left.

ARA Kart Club Meets Oct. 11

Newly-organized ARA Kart Club will meet at 7:30 p.m., Oct. 11 in ARA Clubhouse.

Designated as "novice night" by Denny Evans, newly-elected president, the meeting is designed to introduce prospective members to some detailed points of Kart racing. Karts will be displayed, movies shown, and there will be a question and answer session.

"The club will feature competitive racing events plus sessions devoted exclusively to family fun," Evans said.

Tourney to Select '62 Chess Champion

Points will get you nothing but elimination tomorrow (Oct. 11) night at 8 when Astronautics Chess Club begins its annual tournament to select a 1962 plant champion.

This is an elimination event that will continue at one round per week until only the champion is left.

A game lost will mean one point, a draw game will count a half-point. Three points garnered and a player is out of the running.

No advance registration is necessary, although those desiring to enter are urged to be on hand in advance of the 8 p.m. starting time, according to ARA Commissioner Jack Horning.

Tennis Clinic Series Slated For ARA Area

First of a series of monthly tennis clinics sponsored by ARA Tennis Club will be held at 10 a.m., Oct. 20 at courts in the ARA Area.

Open to all GD/Astro employees and dependents, the free clinics will provide group instruction in tennis fundamentals for beginning players or those desiring to improve their game. Guidance will be provided by members of ARA Tennis Team with occasional sessions under local professionals.

Participants are asked to bring their own rackets and shoes. Balls will be furnished by ARA. No advance registration is required but additional information is available from Ben Cendali, ARA commissioner, Sycamore ext. 58.

Helix Toastmasters Elect GD/Astro Men

Four of six officers installed recently by Mt. Helix Toastmasters Club 126 are GD/Astro employees.

They include Seymour Zeenkov, president; Jack Fisher, administrative vice president; Glenn Vail, secretary; and Dave Rhoads, sergeant at arms. Past President Jim Johnson, and Cy Campbell, District 5 governor, who conducted the installation, are also employed at GD/Astro.

Astro Softballers End Season With Victory in Invitational

A first-rate season for Astronautics softball team was crowned with victory in the La Mesa Invitational Tournament concluding last week at Helix Field.

The team, under ARA Commissioner Forest Erwin, played AAA ball in San Diego City League. They won the first round of the season, placed second in a subsequent round, and were edged by a narrow margin in the play-offs.

In the La Mesa tournament, the Astro group won five consecutive games with Roy Neie, pitcher, allowing only three runs and 12 hits in the entire series.

Hitting honors in the final tilt with NAS Miramar went to Garfield Winters with a double in the second period, followed by a single from Whitey James. Winters had scored a home run in an earlier tournament game.

Astro dropped Miramar 2-0.

Totals for the year show Astro with 38 wins, 10 losses.

ARA Divers Cruise To Coronado Islands

A members-only boat trip was held by Astro Divers, ARA skin diving club, Oct. 6, to the Coronado Islands to dive for lobsters.

In mid-September the group held a spearfishing contest at Bird Rock. Winners were Bob Nicholas and Howard Gertzman.

Six club members are active in the underwater search and recovery team established by San Diego Council of Diving Clubs. Jorge Zorrilla and Cliff Kickbush, ARA commissioner, rank as lieutenants. Other participants are Frank Samuelson, Joe Walker, Nicholas and John Smaldino.

Zorrilla and Walker took part early last month in an effort to locate a girl lost in the surf off Baja California.

Astro Bridge Club Starting Library

Commissioner Art Saastad has invited all bridge fans among GD/Astro employees to participate in sessions of ARA Bridge Club, meeting at 7:30 p.m. Thursdays in ARA Clubhouse.

Players of all skills are welcome, and beginners will receive special attention, Saastad said.

Plans to acquire books for a club library are under way with the first order to be placed in the near future. Persons wishing the library to acquire a particular volume have been asked to contact G. M. Alford, ext. 1516.

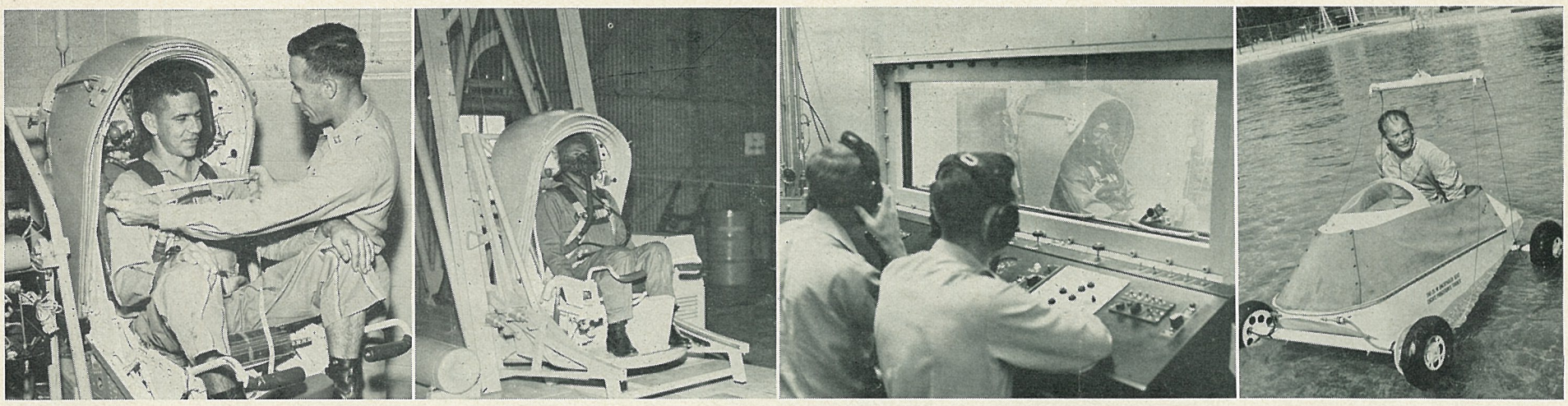
Atlas Missile Tops Trailer Club Entry

Sixty persons in 11 trailers represented Astro Travelers, ARA trailer club, at the Travel Trailer Club of America's Border District Rally at Del Mar Sept. 27-30.

Member Helen Marshall won first place in a hobby exhibit featured as a rally event, and the ARA group displayed a parade entry of a miniature trailer topped with an Atlas missile.

Other activities during the rally included games, a "crazy hat" contest, dancing exhibition and square dancing. Highlight was a potluck supper Saturday evening.

RALLY 'ROUND—Miniature trailer with Atlas and club insigne entered in parade at trailer club rally at Del Mar is surrounded by some 60 Astro Travelers members who attended event.



SEQUENCE—B-58 crewmen are undergoing survival training at Carswell AFB, Fort Worth. At top left Max Runyan, GD/FW Dept. 12, is "sized" for capsule by Capt. N. C. Nicholas. In next picture Grover Tate, also GD/FW, takes training ride on 25-foot tower, simulating ejection. Second from right: "fog" fills chamber as loss of pressurization is simulated. Far right: Fred Hewes, GD/FW, rehearses aquatic survival, after being lowered from 12-foot boom.

Double Whirling

Study Casts New Light On Vortex Phenomenon

Merwin Sibulkin has dived into the "bathtub controversy" and come up with scientific data that sheds new light on an old subject.

Sibulkin is a staff scientist at General Dynamics / Astronautics who specializes in fluid dynamics.

His findings were published in the September Journal of Fluid Mechanics of the Cambridge University Press, London, under the heading "A Note on the Bathtub Vortex."

The "bathtub controversy" isn't new, but has provoked some extensive coverage in news media, especially in the British Commonwealth. It concerns the swirling motion water makes on draining from a container such as a bathtub. Those interested want to know why it takes a clockwise direction in some tubs, a counter-clockwise direction in others.

This direction or motion is called the "bathtub vortex."

Strong support rallies around the Coriolis force theory involving the rotation of the earth on its axis. Believers say that motion in the northern hemisphere appears to be deflected to the right, while that south of the equator deflects left. This, they say, is why water supposedly exits in a counter-clockwise direction here and in a clockwise direction south of the equator.

As a pure science study, one of many performed by General Dynamics specialists, Sibulkin spent about three months experimenting on the subject. He was aided by Norman Fong.

Experiments developed strong evidence that:

(1) If water is allowed to settle not more than a few hours, the exit rotation is actually the direction in which the container is filled. It must settle several days before it exits counter-clockwise every time.

(2) As the liquid surface approaches the bottom of the tub, the direction of rotation is reversed!

Thus, a single tub may drain in both a clockwise and counter-clockwise direction.

Sibulkin and Fong fabricated a cylindrical "bathtub" of transparent Lucite. It was 12 inches in diameter, four inches high and had a centered outlet. Capacity was about two quarts, although the water level in tests varied greatly. A filler tube could be angled to allow water to enter from either direction at a standardized rate.

As an aid to studies, powdered substances or dye were added to the water, either at a fixed rate or to color the water entirely.

Pulling the outlet plug started an observation "run."

After noting the unexpected reversal phenomenon in most of the early "runs," emphasis was then switched to determining why it occurred. A thin cork disc was floated on the surface. As the water level dropped, the disc centered over the vortex above the outlet, making it possible to study closely the rotation sequence near the bottom of the tank. It also made possible the recording, through high speed motion picture photography, of data to support the findings.

More Europe Cities Served by Jet 990s

Convair 990s are touching down at new ports as Swissair and SAS send their newest version jetliners into more and more European cities.

SAS has added Dusseldorf and Frankfort, Germany, and Rome, Italy to its 990 routes from Copenhagen to Tokyo. Swissair now is operating 990s seven days out of each month on round trip flights from Zurich to London and Geneva to London. It also is using a 990 on Zurich to Barcelona, Spain, runs.

GD/FW Man Elected National Director

R. R. Massegee, president of the Stone Steppers, the Rockhound activity of GD/FWRA, has been appointed director of the American Federation of Mineralogical Societies for a two-year period beginning Nov. 1, 1962.

The societies consist of six regional federations, each of which is represented in the American Federation by two directors and the president.

Improvement in Nameplate Fabrication Results in Substantial Expense Cut

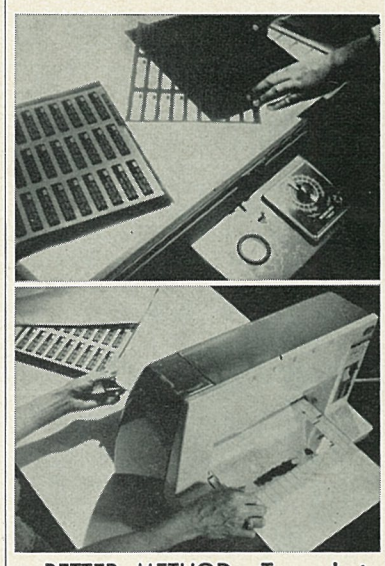
Even a relatively small item—a decal—is considered in cost-saving plans of a missile program.

One decal wouldn't be regarded as a weighty expense. But military specifications often require more than 500 decals per missile for various identification purposes such as the contractor's name and assembly inspection date or for operational instructions. This multiplies pennies into valuable dollars.

A 40 per cent savings amounting to about $4,000 annually occurred recently at General Dynamics/Pomona as the result of a nameplate (decal) fabrication improvement study.

The basic recommendation of the study was use of plain aluminum foil rather than foil with an adhesive backing. This change results in a labor-time reduction of about 70 per cent for engraving (by black-light printer) nameplates on the unbacked aluminum foil.

After completion of the engraving process, adhesives are easily applied. The new process requires less operator skill, yet produces a much higher quality of decal.



BETTER METHOD—Top photo shows how decals are engraved on plain aluminum foil by black-light printer. Adhesives are easily applied (as shown in bottom photo).

B-58 Crewmen Indoctrinated In Escape, Survival Technique

A 10 G ride up an escape tower, a survival workout in water and a simulated loss of air at 50,000 feet are all part of a B-58 emergency escape capsule training course in progress at Carswell AFB.

All B-58 airmen — including GD/FW flight personnel — are undergoing the realistic 18-hour training at Carswell's physiological center under guidance of Capt. N. C. Nicholas, chief of physiological training.

First hour is spent in "man-sizing," an orientation session to determine if a man fits inside a capsule and can carry on necessary manual operations.

"By measuring about 300 men, we hope to establish some definite size standards for B-58 airmen," said Captain Nicholas.

"The job isn't an easy one. One officer 6-feet, 6-inches tall passed sizing requirements with flying colors, as did another who was 6-feet, 3-inches tall and weighed 246. But one officer who weighed 206 and stood slightly over six feet didn't make it."

An oversize wrist-to-elbow measurement, arm length, or back width, and other such measurements can disqualify a man. But to date, only a very small percentage have failed to breeze through the sizing routine. A man with a size 13 shoe made it with some room to spare—but his foot was built "right."

After sizing up his man, Captain Nicholas sends him for a realistic ride on a 24-foot tower.

In this exercise, the crewman initiates encapsulating action and theoretically hurtles out of his B-58 station into the slipstream.

"The jolt he gets in this ride, operated on air pressure, is about 10 Gs," Captain Nicholas said. "But it's a little rougher than the one he would feel from a rocket-powered ejection."

Sliding back down the tower, the crewman is subjected to a force comparable to the one felt when the capsule hits denser air, automatically triggering the main chute. The capsule slides out on a rail extension, placing the occupant virtually "on his back," very much like the position he would be forced into in a real ejection from a B-58.

"In this particular exercise, we have the option of feeding in malfunctions anywhere during an 'ejection,'" Captain Nicholas said. "This prevents the exercise from becoming too routine."

Procedures for water landing are a little different, so the crewman spends much of the next three hours afloat in a capsule in the Carswell swimming pool.

Dropped from a 12-foot boom, he must open the capsule's protective inner curtain, don down clothing, find and operate his radio, install the capsule's snorkel and discover how to "browse" around for long periods in a space considerably smaller than his shower.

Finally, the B-58 crewman gets a workout in decompression techniques in the high-altitude chamber.

The capsule occupant is elevated from 21,500 to a simulated altitude of 50,000 feet, where decompression occurs.

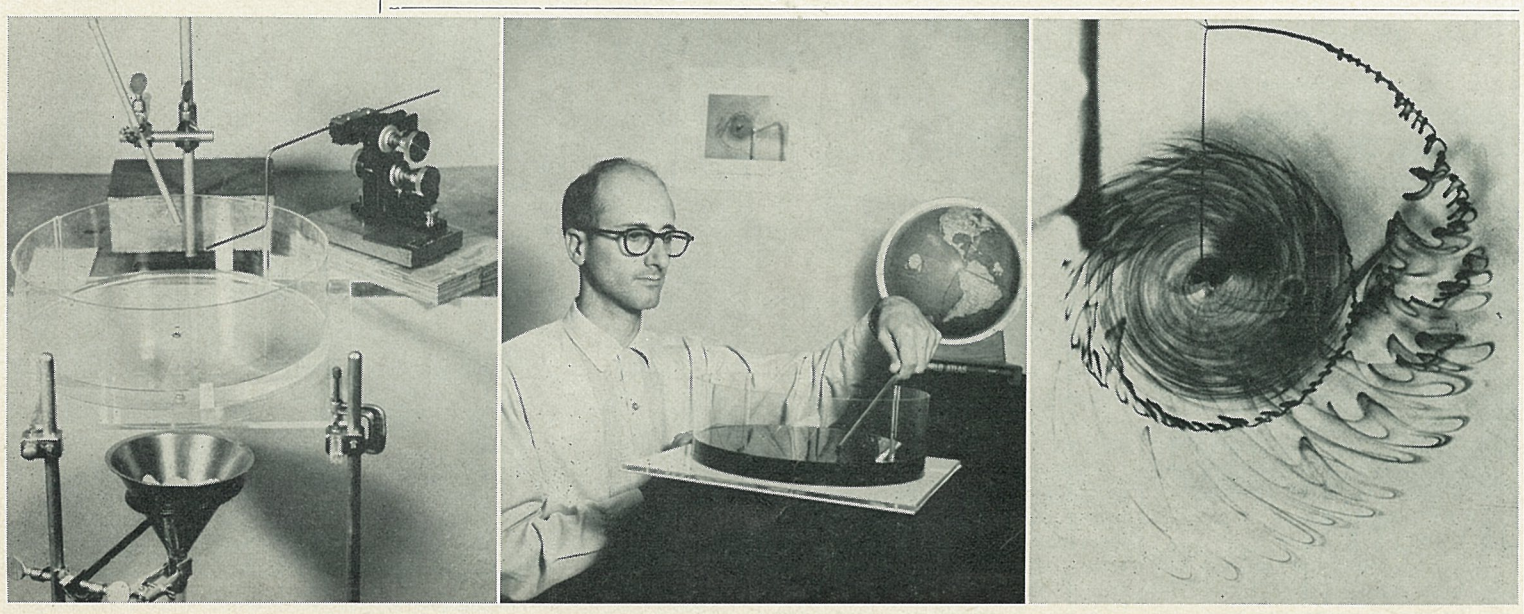
The crewman instantly pulls a handle which closes the capsule door and sets off the capsule's pressurization system.

(In case of decompression, a B-58 crewman can close and pressurize his capsule and fly to lower altitude, or if the situation warrants, eject from the plane.)

Topics included in this final phase of training include effects of high altitude on the human body, causes and treatment of oxygen deficiency, care of oxygen equipment, explosive decompression, pressure-breathing techniques and flydown following decompression.

Members of GD/FW Air Force Plant Representative's office taking the course are Lt. Col. Joe B. Thomson Jr., Majors Curtis R. Keogh, Robert S. Ballard, and Andrew Z. Doka, Capt. Russell E. Clark Jr. and M/Sgt. Frank E. Pulley.

GD/Fort Worth flight department personnel include: R. L. Johnson, Val E. Prahl, E. E. Guthrie, F. J. Voorhies, W. E. Denton, Vincent J. Kane, Fred A. Hewes, Michael F. Keller, James C. Lucas, Norman C. Stranberg, Grover C. Tate, Jack L. Blackmon, Charles B. Cox, Dale C. Ford, Paul Brewer, Max L. Runyan, and A. F. Riley.



ROUND AND ROUND—Merwin Sibulkin, GD/Astro staff scientist, demonstrates part of equipment used during study of why escaping water whirls in a particular direction. Dye was added to water in some tests to reveal behavior, as shown in photo at right.

Ex-Shell Oil Head Dynamics Director

H. S. M. Burns has been elected a director of General Dynamics Corporation, Roger Lewis, president, announced last week.

Burns retired as president and chief executive officer of Shell Oil Co. and chairman of its executive committee Dec. 31, 1960. He had been with Shell since 1926, starting as a geophysicist in California.

ABRAMS TO SPEAK TO ROCKET SOCIETY

M. C. Abrams of General Dynamics/Pomona's Dept. 6 will present a paper entitled "Effect of afterburning extinguishment on ionization in rocket motor exhausts" at the American Rocket Society meeting in Palm Springs this Friday (Oct. 12).

GDDDDDDD
ASTRONAUTICS EDITION
(OFF-SITE)

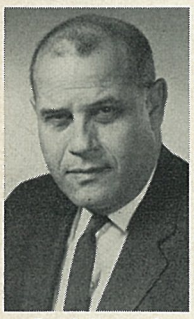
GENERAL DYNAMICS NEWS

Vol. 15, No. 21 PUBLISHED BY GENERAL DYNAMICS CORPORATION 62 Wednesday, October 10, 1962

Frank Traversi Named VP For Administration

Organizational changes within the executive structure at General Dynamics/Astronautics have been announced by President J. R. Dempsey.

Included are the elimination of an executive vice president post, appointment of two new vice presidents and a reduction in the number of functional department heads reporting to Dempsey.



Frank Traversi

New vice presidents are Mortimer Rosenbaum for research, development and engineering, and Frank J. Traversi for administration. Rosenbaum was executive vice president and Traversi, director of material.

Citing the need for a higher degree of control and efficiency in light of the changing nature of Astronautics business, Dempsey said changes were made so that proper emphasis and coordination may be given technical, administrative and operations functions within the division.

"Until fairly recently, our main work was development of the Atlas and its operational bases. Some development continues on Atlas, but we also have Centaur and other programs," Dempsey said. "The need is to have a management which can handle a number of different, highly-technical programs simultaneously."

The pending completion of base activation tasks and the phasing out of certain programs have reduced demands on the president's office, making the function of an executive vice president no longer necessary, Dempsey added.

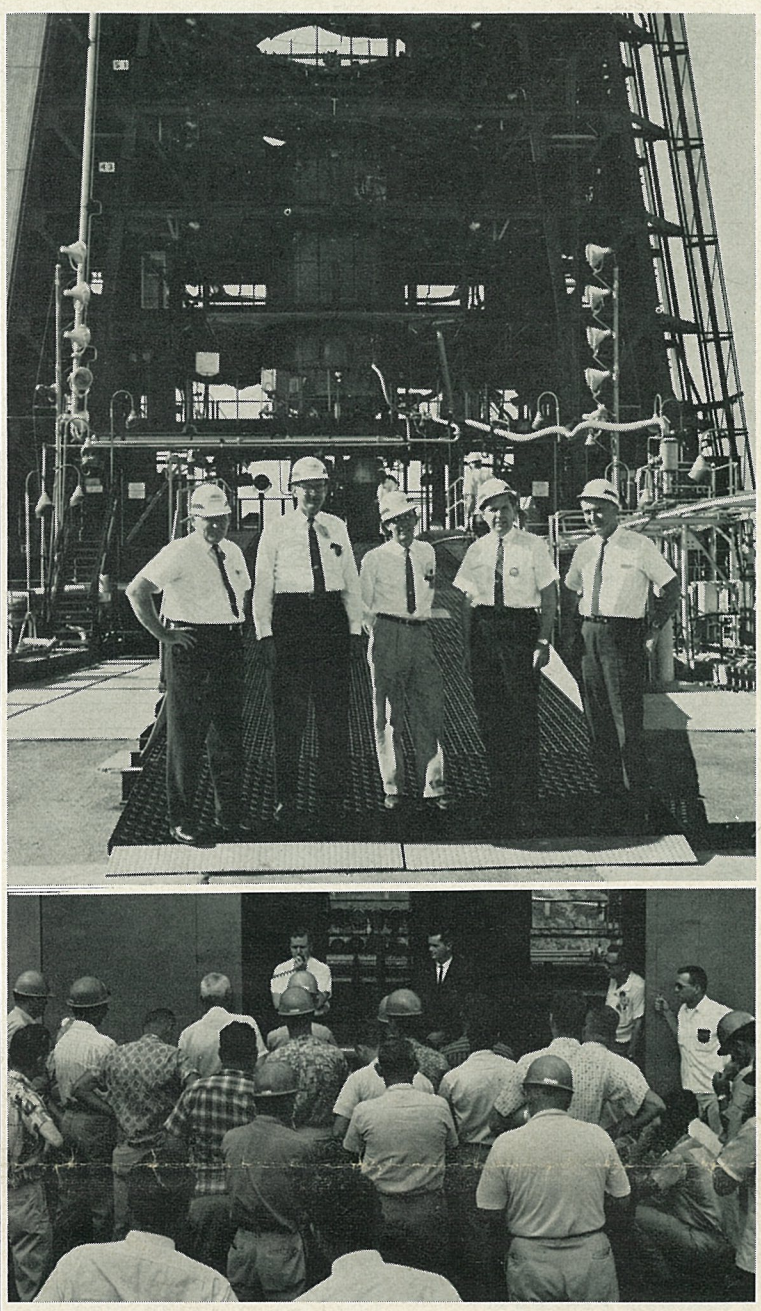
However, as head of total research and technical design activities, previously more widely distributed in the division staff, Rosenbaum will be filling a key post, he added.

Reporting to Rosenbaum will be: W. W. Withee, vice president — engineering; K. J. Bossart, technical director; K. A. Ehricke, director of advanced studies; Dr. H. F. Dunholter, director of research and development; F. J. Dore, director of advanced systems; and Andrew Kalitinsky, program director—Nova.

Administrative department heads now reporting to Traversi include: C. W. Blakey, director of contracts; C. T. Newton, director of communication; M. V. Wisdom, director of industrial relations; G. M. Robertson, director of management systems (except resources planning and control); and a director of material (except material operations). Traversi will act as the latter at present.

E. D. Bryant, vice president—operations, will continue to head his present organization with the following additional responsibilities: E. A. Reynolds, director of product support; J. K. Davant, manager of resources planning and control; and R. E. Poling, manager of material operations.

Four vice presidents and program directors—Charles S. Ames, space launch vehicles, William L. Van Horn, Atlas weapons system, Grant L. Hansen, Centaur, and Sam L. Ackerman, electronic products—and W. H. Patterson, vice president—advanced product planning, continue to report to Dempsey. Also, E. G. Hill, controller, P. M. Prophett, director of base activation, and H. Cushman Dow, chief counsel.



CENTAUR TOUR—Grant L. Hansen, vice president and program director—Centaur, has been making rounds, briefing key Centaur units. At top he is at Test Stand 1-1 at Edwards RS. From left: W. R. Jackson, V. L. Allwardt, John Mantle, Hansen, F. E. Wilhelm. In lower photo, Hansen addresses personnel at Sycamore Canyon.

RS, Cape and Sycamore Briefed About Centaur

EDWARDS RS—In rapid order, Grant L. Hansen, vice president and program director—Centaur, spoke before three groups here Sept. 26 to wind up a series of talks before all Centaur program employees.

These talks, made over a period of several weeks, have found Hansen appearing before Centaur personnel at the main plant, Sycamore Canyon, Cape Canaveral and here.

In each he has discussed all phases of the program. He told those participating of Congressional investigations and their results, management technical reviews conducted by NASA's Marshall Space Flight Center and some background on the Centaur project. He spoke of problems faced in the past and some indication of future plans. He left no doubt that the Centaur program is one of vital importance to the nation and will continue. At the conclusion of each talk he answered questions from the audience.

His appearances here were similar to those at other locations. He and key leaders in the program appeared in the test area to talk first with day shift employees, later with those reporting for night shift assignments.

Climaxing his visit here was a talk before the Antelope Valley Management Club of General Dynamics. Following his talk, he took his place as a panel member with others to answer questions and discuss Centaur.

The panel was moderated by V. L. Allwardt, Astro's manager here. Panel members besides Hansen were: W. R. Jackson, manager of test operations; F. E. Wilhelm, assistant to the vice president; J. C. Cannady, financial control manager; and Allwardt.

Atlas Launch Perfect For Six-Orbit Flight

"Near perfect" is the term heard most often in referring to the six-orbit flight last week of Astronaut Walter Schirra.

And the term has a sweet sound, indeed, to the thousands of General Dynamics/Astronautics men and women who played vital roles in making it possible. It is a fitting reward, if one is needed, for the many, many extra moments, and motions spent in seeing that Atlas 113-D was fabricated, checked out and launched with the utmost care.

Details of the flight are history. Launch came at 7:15 a.m. (EST) at Complex 14 and ended nine hours, 13 minutes later with successful recovery of the Sigma 7 spacecraft in mid-Pacific. Apogee in the six orbits was 176 miles and perigee, 100 miles. Orbit speed was 17,560 miles an hour.

"It was a perfect shot—the finest countdown we ever had," said B. G. MacNabb, Astro's director of operations at AMR. "There wasn't a hitch. The 'bird' behaved perfectly."

Conducting the countdown and commiting Atlas 113-D to flight was Calvin D. Fowler, Astro site

(Continued on Page 2)

Wives' Auxiliary Will Lunch Oct. 17

Astro Wives' Auxiliary will hold its monthly luncheon meeting Oct. 17 at Rose Mandarin Garden, 8552 La Mesa Blvd., La Mesa.

Social hour opens the event at 11:30 a.m., with luncheon at 12:30 p.m. Special guest speaker is Gil Hutter, Prophet Co. cafeteria manager at GD/Astronautics, who will give a cake decorating demonstration.

Reservations may be made with Mrs. Louis Ferriera, BR-3-7634, through Oct. 15. Wives of all GD/Astro employees are welcome to take part in activities of Astro Wives' Auxiliary.

Centaur Project Reins Shift to Lewis Research

Project management of the General Dynamics/Astronautics-produced Centaur launch vehicle has been reassigned by the National Aeronautics and Space Administration (NASA).

Program responsibility now rests with NASA's Lewis Research Center, Cleveland, Ohio. Previously, it fell to the Marshall Space Flight Center, Huntsville, Ala.

Announcement of the change was part of a three-step effort on the part of NASA to intensify the development program for space use of liquid hydrogen, according to Administrator James E. Webb.

Also included were plans to initiate studies to determine the merits of the adaptation of the Centaur stage to other boosters for future use in the NASA space exploration program and the reassignment of project management of the hydrogen-fueled M-1 rocket engine to the Lewis Center.

Centaur is a liquid hydrogen upper stage, the nation's first, powered by two 15,000-pound thrust RL-10 engines. With an Astronautics Atlas Series "D" first stage, it has been designed for a prime mission of soft landing a 2,100-pound Surveyor spacecraft on the moon. Future missions involving this combination include Mariner interplanetary flights and boosting spacecraft into 24-hour synchronous orbits.

The M-1 engine, largest liquid hydrogen/liquid oxygen rocket engine under development, will have 1.2 million pounds of thrust. It is designed to power the second stage of a Nova launch vehicle through clustering of engines.

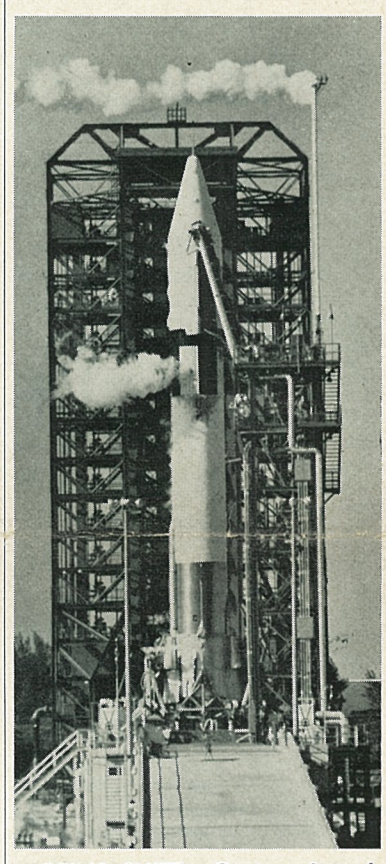
In commenting on the transfer, Administrator Webb said: "It will permit the Lewis Center to use its experience in liquid hydrogen to further the work already done on one of the most promising high energy rocket fuels and its application to Centaur and the M-1.

"By allowing the Marshall Center to concentrate its efforts on the Saturn vehicles for manned lunar landing, we will be able to achieve our objectives in the time frame that we planned," he added.

Lewis Center has pioneered in the field of liquid hydrogen fuels, starting a study in 1950 and test firing a 5,000-pound thrust engine in 1953.

At GD/Astro, Grant L. Hansen, vice president and program director-Centaur, indicated the new project management responsibilities would not affect Astro's internal Centaur group.

"We will continue to give the Lewis Center our complete support, just as we have the Marshall Center in the past," he said.



REINS SHIFT—Centaur launch vehicle, shown here atop Atlas first stage prior to launch this year from Cape Canaveral, has been shifted from one NASA group to another for project management.

Webb pointed out that a detailed analysis of Centaur was made following a failure on its first flight test in May, 1962. This analysis supports the concept and design of Centaur as a sound basis for an intensified development effort which will result in a vehicle capable of the high performance missions assigned to it, he added.

The intensified program will concentrate on successful completion of the research and development flights by late 1964 or early 1965, with operational capability available thereafter.

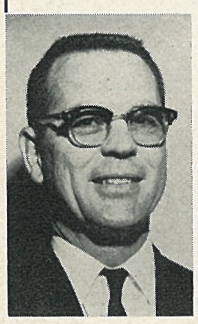
Dr. Abe Silverstein is director of the Lewis Center. A Centaur project office is being established as part of the program under Bruce Lundin, associate director for development.

For over 20 years involved in researching advanced aircraft and space vehicle propulsion techniques, NASA's Lewis Research Center has recently added to that task the management of development projects.

Located on 250 acres of NASA-owned land adjacent to Cleveland-Hopkins Airport, the facility is staffed by nearly 4,000 persons.

In addition to the Centaur program, Lewis also manages the planned Apollo lunar-landing module.

Log Book Entries



Robert E. Bruce, GD/Astro Dept. 403-1, recently received his 25-year emblem.

Service Emblems

MAIN PLANT

Service emblems due during the period Oct. 1 through Oct. 15.

Twenty-five-year: Dept. 382-3, W. F. McGrath.

Twenty-year: Dept. 143-5, W. W. Berger; Dept. 144-3, Michael Buchko; Dept. 383-4, J. A. Gabriel.

Fifteen-year: Dept. 101-1, F. J. Knight; Dept. 154-1, C. F. Ley; Dept. 301-0, N. S. Simmons; Dept. 333-2, V. L. Pickering; Dept. 344-3, H. C. Allison; Dept. 378-1, C. T. Shea; Dept. 380-2, B. S. Jaeschke; Dept. 461-0, W. R. Bure; Dept. 673-0, J. H. Evans; Dept. 731-0, M. D. Wolfe; Dept. 783-0, Carl Lindsey.

Ten-year: Dept. 130-1, D. E. W. Dunn, Robert Loeper; Dept. 250-5, G. L. Zuniga; Dept. 335-2, L. H. Stevenson Jr.; Dept. 373-1, C. M. Horton; Dept. 377, W. B. Gorham, C. A. Lab; Dept. 756-0, J. R. Bowles, W. S. Sowa; Dept. 811-1, D. V. Colt; Dept. 831-1, M. C. Hight; Dept. 955-0, G. A. Lefebvre; Dept. 971-5, J. E. Beebe.

ALTUS AFB

Fifteen-year: Dept. 617-7, M. B. Cottrell.

DYESS AFB

Ten-year: Dept. 618-2, Jack Stanger.

SYCAMORE

Ten-year: Dept. 573-3, W. H. Jillard, K. R. Shultz.

VANDENBERG AFB

Fifteen-year: Dept. 576-2, J. B. Braziel.

WALKER AFB

Twenty-year: Dept. 619, R. E. Gumtz, W. B. Watkins.

Ten-year: Dept. 619-4, M. V. Chenault.

Promotions

MAIN PLANT

Promotions to or within supervision effective Sept. 24.

Dept. 110-0, Contracts: To contract administrator, E. R. Joos.

Dept. 140-1, Reliability Control: To reliability control administration asst. supervisor, S. W. Bobrowski, E. Engelman.

Dept. 145-0, Reliability Control Engineering: To reliability group engineer, W. G. Bjornson, G. L. Stiehl Jr.

Dept. 147-0, Reliability Control (SLV): To chief of quality control, project, J. Q. Friend.

Dept. 148-0, Reliability Control (AWS): To chief of quality control, project, G. E. Briggs.

Dept. 170-4, Organization and Systems: To clerical asst. supervisor, M. B. Cain.

Dept. 320-0, Support Engineering: To support publications supervisor, T. C. Neal.

Dept. 321-5, Support Systems Engineering: To trainer devices asst. supervisor, J. L. Saffer.

Dept. 322-5, Support Publications: To support publications asst. supervisor, A. L. Ward.

Dept. 372-0, AWS Design Engineering: To design group engineer, T. H. Buckley.

Dept. 376-1, AWS Design Engineering: To research group engineer, P. S. Yip.

Dept. 377-4, AWS Design Engineering: To asst. design group engineer, R. V. Madonia.

Dept. 538-7, Engineering Design: To asst. design group engineer, E. J. Popovich.

Dept. 850-0, Material Contracts and Services: To chief of material contracts, W. C. Clinton.

Dept. 964-3, Centaur Design Engineering: To asst. electronics group engineer, E. A. Nelson.

AFMTC

Dept. 571-1, GD/Astronautics Operations: To asst. flight test group engineer, J. L. Kettring. Dept. 681-0, SLV Launch Operations: To asst. site manager-base, H. C. O'Dell.

Deaths

MAIN PLANT

CRANE—Frances, Dept. 193-3. Died Sept. 27. Survived by husband, Donald.

McCLUSKEY—William T., Dept. 335-3. Died Sept. 27. Survived by wife, Carrie.

PLESE—Gregory G., Dept. 322-7. Died Sept. 14. Survived by mother, Mrs. Joyce France.

WALRUFF—Charles A., Dept. 578-0. Died Sept. 20. Survived by wife, Esther.

VANDENBERG AFB

WATKINS—W. B., Dept. 576-6. Died Sept. 22. Survived by wife, Vivian Louise.

WELLIVER—Graydon E., Dept. 576-3. Died Sept. 21. Survived by wife, Mildred.

Births

MAIN PLANT

HACKMAN—Daughter, Lou Ann, 8 lbs., 9 oz., born Sept. 23 to Mr. and Mrs. V. V. Hackman, Dept. 731-0.

POWELL—Daughter, Carmen Monica, 7 lbs., 14 oz., born Sept. 23 to Mr. and Mrs. John Powell, Dept. 378-1.

WALKER AFB

HUPRICH—Son, James Michael, 5 lbs., 11 oz., born Sept. 12 to Mr. and Mrs. James Huprich, Dept. 619-0.

Check of Payroll Stubs Urged to Bare Inaccuracies

General Dynamics/Astronautics employees everywhere are being asked to check their payroll check stubs this week for correct address and Social Security entries.

Division records show many employees to have incorrect addresses and in some cases no addresses. The same holds true for Social Security numbers.

Shortly after the first of the year 1962 Federal Withholding Tax Statements (Form W-2) must be prepared for all employees and the information mentioned must be obtained for correct delivery. Too, incorrect Social Security numbers prohibit Astronautics from making proper application of taxable wages to the Social Security Administration.

Here's the correct procedure to follow:

Addresses that are incorrect or do not show can be corrected by completing a "Change of Address" (Form 14449 CZ) card available at all time clocks or through timekeepers. These are to be forwarded to financial accounting, mail zone 191-02, at the main plant.

Incorrect or no Social Security listings should be reported directly to the employment section of industrial relations, mail zone 130-6, at the main plant. Include both the number now appearing on the check stubs and the correct security number.

Expense Report Forms Change

New expense report forms (A-1515) go into use at General Dynamics/Astronautics Oct. 21.

At that time issue 4-59 becomes obsolete and issue 3-62 must be used in submitting all authorized requests for travel reimbursements.

Basic information required on both old and new issues is essentially the same, except the new form no longer has a time and labor section on the reverse side. Employees on travel status must now submit a separate form, "Weekly Time and Labor Distribution," to timekeeping for this purpose.

And it is no longer necessary to prepare a separate expense report for timekeeping. Only one copy of the report is to be submitted, although employees are urged to keep a separate copy for personal income tax purposes.

Employees are urged to double check all reports submitted for correctness of entries and information. Under a new accounting procedure, information contained becomes basic input material for computers.

General Dynamics NEWS

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Convair Editorial Offices, Bldg. 32, Plant 1, GD/Convair, Mail Zone 1-320, P.O. Box 1950, San Diego 12, Calif. Telephone CYpress 6-6611, ext. 1071. Staff: Grayce Fath, Helen Pemberton.

GD/Electronics (San Diego) news contact: Betty Freeby, CY-8-4641, ext. 1377, Plant 1, Bldg. 51.

Fort Worth Editorial Offices, Col. 72, Admin. Bldg., GD/Fort Worth, Mail Zone 0-50, P.O. Box 748, Fort Worth 1, Texas. Telephone PErshing 8-7311, ext. 2961. Staff: Dave Lewis, editor; Mary Beck.

Pomona Editorial Offices, Room 106-D, Bldg. 1, GD/Pomona, Mail Zone 3-3, P.O. Box 1011, Pomona, Calif. Telephone NAtional 9-5111, ext. 6226-5279. Staff: Glenn Kehr, editor; Carol Sowers. Daingerfield news office, P.O. Box 947, Daingerfield, Texas. Telephone Lone Star, Texas, 2211, ext. 424.

* * *

Affiliated editions of General Dynamics NEWS are published in Rochester, N. Y., covering GD/Electronics and GD/Telecommunication, editorial offices, 100 Carlson Road, HUbbard 2-2200, ext. 2555, Gordon Morison, editor; and at Groton, Conn., covering GD/Electric Boat, editorial offices at Groton, HIlltop 5-4321, ext. 300 and 513. Joseph Tracey, editor.

More Science Classes Open

Two additional courses open to GD/Astro employees have been announced by educational services (Dept. 130-3).

Opening Oct. 22 for meetings from 5 to 6 p.m., Mondays and Wednesdays for an 18-week period is a free graduate level course in Atomic and Molecular Physics and Space Surveillance. Dr. Alex E. S. Green, space sciences manager, will instruct in Bldg. 17, room 10, at the main plant.

Prospective students (bachelor's degree prerequisite) have been asked to call Laura, ext. 1933 or 1934 to register.

Added to San Diego City College courses is a new class in Rocket Propulsion. This will meet from 6:30 to 9:30 p.m., Thursdays, at San Diego Evening College, 1425 Russ Blvd.

No advance registration is necessary as enrollment will be conducted at the first class meeting Oct. 25. Student Activity Card fee of $1 is charged.

Club Planning Dinner-Dance

"An Evening Cruise Aboard the SS OceanHouse" will be staged Oct. 20 by the Astronautics Management Club.

The "cruise" is a dinner-dance and the "SS OceanHouse" is the popular new Mission Bay hotel where the event will be held in the Fleet Room.

An outdoor (weather permitting) or indoor social hour from 7 until 8 p.m. will start the affair. Dinner will be served at 8. Dancing follows from 9 until 1 a.m. The Islanders will play for the pre-dance period, while Dan Hale and his orchestra will provide dance music.

Tickets for the affair, sponsored by industrial relations, went on sale this week at $4 per person. Only 700 tickets are available, due to house capacity.

This is not a closed meeting.

Medlock Manager Of Quality Control

L. I. "Russ" Medlock has been named manager of quality control at General Dynamics/Astronautics, reporting to P. I. Harr, director of reliability control.

Reporting to Medlock will be Sam Braun, chief of inspection—procurement, and J. F. Baebler, chief of inspection—factory.

R. J. Hendrickson continues as chief of quality control for product support and will report to Medlock.

Nicholson Named To Quality Post

R. H. Nicholson has been named chief of off-site quality control for the General Dynamics/Astronautics space launch vehicle program by P. I. Harr, director of reliability control.

Nicholson reports to W. J. Maloney, space launch vehicle reliability control manager.

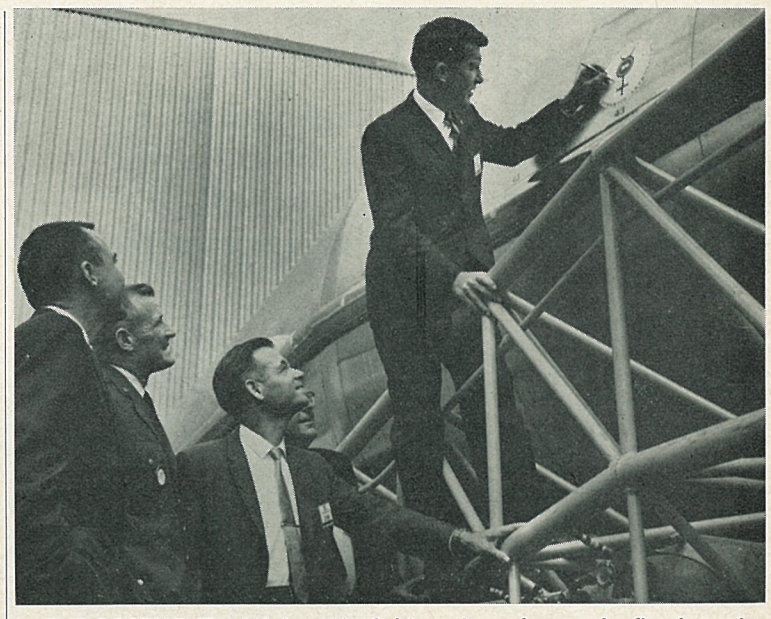
Movies Continuing On Hazard of Fire

If everyone were aware of the hazards, and of basic fire prevention techniques, one human life would be spared every 45 minutes! This is the current casualty toll, from fire, in the United States.

One step in disseminating this vital information is being made this week (National Fire Prevention Week, Oct. 7-13) by General Dynamics/Astronautics fire department.

Daily, today through Friday, movies on industrial fire hazards and fire prevention will be shown for all interested employees in GD/Astro fire station (Bldg. 6), from 11 a.m. to 1:15 p.m.

Fire Chief A. C. Anderson has invited employees to bring their lunches and attend the showings.



ENDORSEMENT—Walter M. Schirra Jr., who made flawless six-orbit flight around earth last week, is shown autographing Atlas missile (such as placed him in orbit) during visit to GD/Astronautics in San Diego.

Atlas Launch Perfect For Six-Orbit Flight

(Continued from Page 1)

manager (formerly test conductor), and an Astro crew. Fowler and his force also launched Astronaut Scott Carpenter. At Fowler's elbow was Thomas J. O'Malley, Astro launch operations manager (formerly chief test conductor), who launched Astronaut John Glenn. Between them the two, plus their Complex 14 crew, have launched every orbital flight in the manned flight program.

In a post-recovery ceremony Mortimer Rosenbaum, vice president—research, development and engineering, presented the astronaut's parents at San Diego with a replica of the turning key that started the flight.

Throughout General Dynamics Corporation, the flight was heralded as a great success. In addition to GD/Astro, other divisions had also contributed. GD/Electronics had built and installed the elaborate Mercury tracking board at Cape Canaveral. Other divisions had participated in other ways.

In true Navy tradition, Commander Schirra radioed from his capsule bobbing in the Pacific to the recovery ship USS Kearsarge: "Permission to come aboard requested."

SAC Accepts More Complexes In Ceremonies at Lincoln AFB

LINCOLN AFB — With minimum fanfare, Strategic Air Command forces here have accepted the second series of Atlas-equipped, silo-based launch facilities to be delivered within the past three weeks.

Elements of SAC's 818th Strategic Aerospace Division received the facilities in turnover ceremonies here from Ballistic Systems Division of the Air Force Systems Command. Acting for the latter was Col. William E. Ruark, SATAF commander here, and former SATAF commander during activation of Atlas facilities at Forbes AFB, Kan.

Ceremonies were held Oct. 1.

On Sept. 13 similar facilities were delivered at Schilling AFB, Kan.

Thus, SAC has received 24 (12 per base) launch complexes in which series "F" Atlas missiles are stored in silo or underground installations until ready for firing, when they are raised to the surface. With each squadron activated, SAC also received elaborate service facilities.

General Dynamics/Astronautics has served as prime contractor for the entire weapons system with base activation forces guiding the installation and checkout of equipment involved, including the missile.

In addition to series "F" facilities delivered, GD/Astro has delivered semi-hard or "coffin" facilities at Warren AFB, Wyo., Forbes AFB, Kan., and Fairchild AFB, Wash. Warren and Offutt AFBs were equipped with "soft" or above ground launch and service facilities for the series "D" Atlas. Combination operational and training Atlas facilities were also delivered at Vandenberg AFB, Calif.

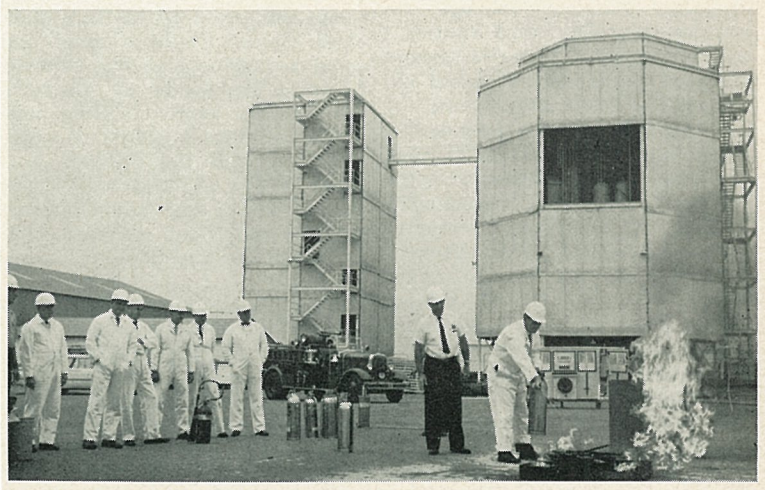
Four series "F" bases are still in activation stages, with completion scheduled by the end of this year. They are at Altus AFB, Okla., Dyess AFB, Tex., Walker AFB, N.M., and Plattsburgh AFB, N. Y.

Single Adult's Club To Gather Oct. 27

A "Full House" party-dance has been scheduled by ARA Single Adult's Club for 8:30 p.m. Oct. 27 at ARA Clubhouse.

On tap will be dancing, prizes, contests and refreshments. Music and entertainment will be provided.

Admission is 50 cents per person, with an Astro "ID" card. All single persons 21 and over are invited.



QUICK DOUSE—Under watchful eye of fire dept. Lt. G. C. Brown, one of first trainees in fire fighting auxiliary force of disaster control unit at GD/Astronautics extinguishes blaze. Fifty members of group are receiving four hours of instruction, including actual use of every type of equipment in use at Astro. Helmets, with decals, will become part of uniform.

Electronic Parts 'Pelletized,' Shrinking Size of Assemblies

"Electronic microminiaturization with potential for automated assembly" is a big thing at General Dynamics/Astronautics.

This multi-syllabled mouthful means simply that a double-headed threat is in store for conventional electronic assembly with its numerous parts in various sizes and shapes.

It means an assembly as big as an office desk may shrink to the size of a shoebox, and that tedious point-by-point soldering methods of assembly may give way to numerically controlled machine techniques.

Heart of this growing concept of electronic assembly is the "pelletized circuit."

In this approach, various electronic parts—capacitors, resistors, transistors, diodes, transformers, etc.—with sizes and shapes formerly as varied as their names, have taken on a uniform configuration.

They now appear as tiny pellets—.062-inches thick and .100-inches in diameter—regardless of function and characteristics.

Although GD/Astro is not alone in exploring the pellet concept, because of long experience and leadership in the field it is one of the first to utilize a full "family" of pelletized components.

Pelletized electronic studies are carried on in GD/Astro's electronic research (Dept. 592-5) headed by G. L. Mealey, chief.

Design Specialist Urho Hammer spearheads development efforts, working closely with Frank Unmack (Dept. 290-1) in the study of manufacturing applications.

In pelletized circuit assembly, the appropriate pellets (resistors, capacitors, etc.) are simply inserted in holes drilled in a supporting board (substrate). Before pellet insertion, grooves are milled in the board faces to connect various holes.

With the pellets in place, the grooves are filled with conductive cement, thus making every electrical connection at one time! Excess cement is ground off, a protective coating applied, and the circuit is complete.

In addition to such obvious advantages as high reliability, and reduced size and weight, the pellet packaging method is seen as adaptable to a wide range of uses, and is compatible with the most advanced electronic microminiaturization techniques.

As automated production becomes widespread, an "unplug the old, plug in the new" maintenance philosophy will be feasible, as costs will be reduced comparable to other methods.

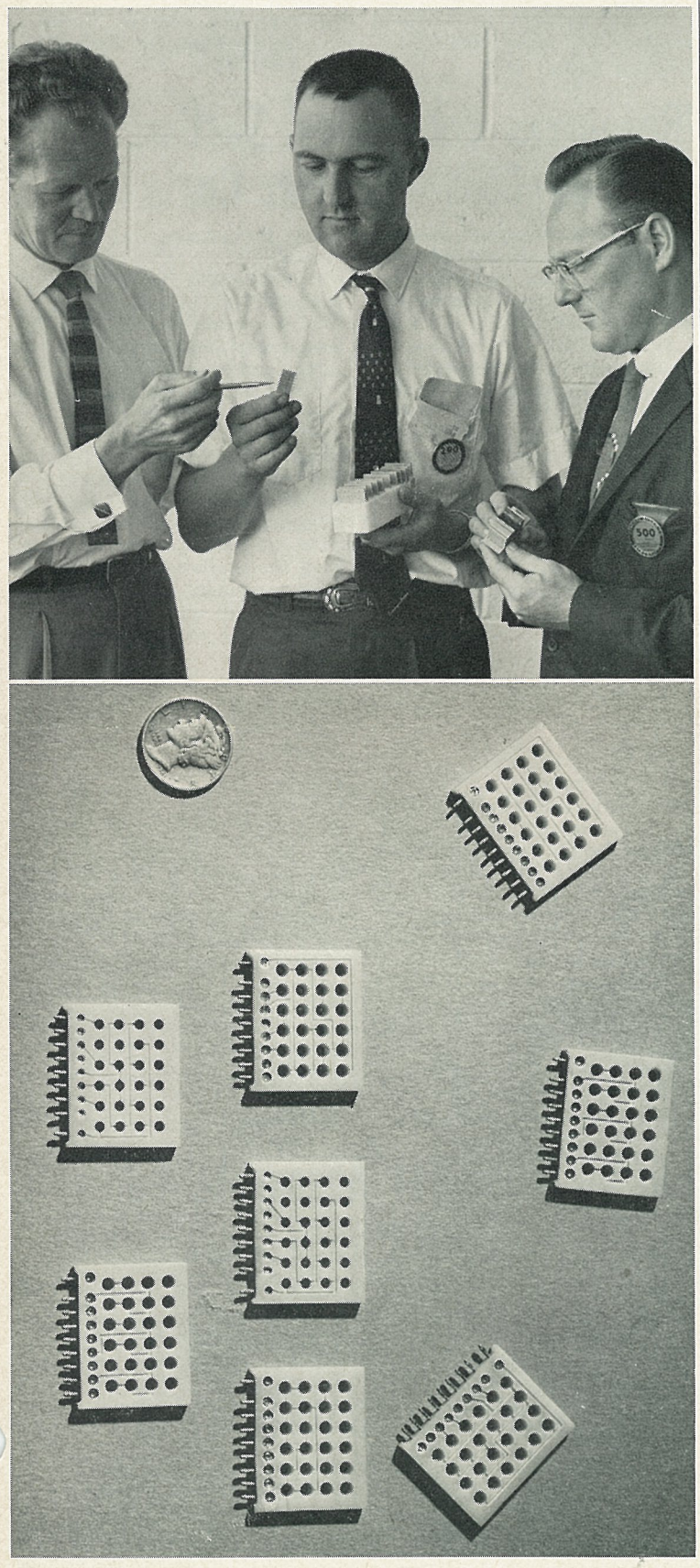
(At present, repair is easy: if a pellet fails, it is simply punched out of the substrate and a new one is cemented in its place.)

Unmack's studies of automatic assembly methods call for a computer battery (including the Stromberg-Carlson 4020 Data Processor and Printer) to work from a design program in producing numerical control tapes, drawings and printed information.

An automatic machine (now in the proposal stage) will work from numerically programmed instructions to prepare substrates, and load them with appropriate pellets.

The GD/Astro group is presently preparing two data processing component systems for Air Force and Navy use, and is in close liaison with General Dynamics/Electronics at both Rochester, N.Y. and in San Diego in applying the concept to advanced products.

Use of pelletized circuits in some GD/Astro electronic products is anticipated by mid-1963.



DIME SIZE—In top photo GD/Astro's Urho Hammer points out details on finished electronic substrate held by Frank Unmack. At right is George Mealey, GD/Astro chief of electronic research. In lower photo, tiny boards drilled to receive pelletized parts of uniform size are compared in size to a dime.

GD/Electronics at Rochester Developing System to Classify Underwater Sounds

A passive aural classification system for use on submarines is being developed by General Dynamics/Electronics — Rochester, N. Y., under a contract awarded by the U. S. Navy's Bureau of Ships.

The system is designed to help submarine sonar operators classify the sounds they hear through the ship's hydrophones. Using it, they can determine which sounds represent enemy ships and which are caused by fish, surf, or other marine phenomena.

The system is an outgrowth of research in target classification by means of underwater sound which has been in progress at Rochester for more than four years. The company's 400,000-gallon sonar test tank is used for the research.

Under the new contract, which is for $59,656, GD/E will build a prototype model of the passive aural classification system for evaluation and testing by the Navy.

Waters and Doyle To Deliver Talks

Two GD/Fort Worth employees are slated to speak before meetings in Fort Worth in October.

Dan Waters, division controller, will speak on "Budgeting, Forecasting, and Profit Planning" before the National Association of Accountants at 7:30 p.m., Oct. 18, at Worth Hotel.

A speech on "Value Engineering" will be delivered by C. W. Doyle, GD/Fort Worth spares value engineer coordinator, before the National Office Managers' Association monthly meeting at 5:30 p.m., Oct. 23, at Worth Hotel.

Hotel Agreements Win Discounts For Dynamics Travelers

Special rates with Pick Hotels Corporation and Hilton Hotels and Inns throughout the country have been arranged for General Dynamics people traveling on company business.

Contracts with the two firms are part of General Dynamics' "Volume Purchasing Program" which currently involves nearly 70 different agreements covering multi-million-dollar procurement of materials and services which GD divisions use in common.

W. G. Evans, corporate director of materiel, predicted that the new agreements, if properly used by Dynamics travelers, will save a substantial amount through reduced rates. The entire Volume Purchasing Program, which has been in effect for a number of years, covers a wide range of commodities and represents a vast saving to the company every year, Evans reported.

"Obviously, much more attractive prices on many items can be negotiated when the potential volume of all General Dynamics' requirements is combined," Evans pointed out.

The arrangement with Pick Hotels and Hilton were negotiated by GD/Fort Worth, under an assignment from the corporate materiel office.

GD/FW Purchasing Agent Robert C. Ruddell reported that the Pick Hotels contract calls for a standard 10 per cent discount from standard rates. In addition, free reservation service for any hotel in the chain can be made from Chicago, New York, Washington, Atlanta and Milwaukee.

A maximum guaranteed rate is provided by the contract with Hilton Reservation Service.

"Based on previous reservation experience, we feel that this contract will result in a reduction of about 18 per cent from the rates normally charged."

Under the Hilton contract, all GD divisions have been assigned direct telephone lines through which they may make reservations free at any hotel in the Hilton chain.

"Every effort should be made to use these agreements," Ruddell said. "This can be done through your traffic department reservation service."

Pick Hotels are located at Birmingham, Chicago, Cincinnati, Cleveland, Columbus, Detroit, Evanston, Flint, Minneapolis, New York, Pittsburgh, St. Louis, South Bend, Toledo, Topeka, Washington, D. C., and Youngstown, Ohio.

Hilton Hotels are located at Albuquerque, Atlanta, Aurora, Ill., Boston, Buffalo, Chicago (2), Cincinnati (2), Cleveland, Columbus, Dallas, Dayton, Denver, Detroit, El Paso (2), Hartford, Houston, Los Angeles, Beverly Hills, New Orleans, New York City (3), Pittsburgh, San Francisco, Seattle, St. Louis, Tarrytown, N. Y., Washington, D. C., Montreal, and Honolulu.

IRE to Hear Talk On Apollo Program

General Dynamics/Pomona employees are invited to a talk on the Apollo space program Oct. 17 at Dinnerhorn Restaurant, Covina, Ray Shields (Dept. 6), GD/Pomona representative of Institute of Radio Engineers, announced.

J. A. Corvi, assistant chief of the Apollo program for North American Aviation, will review the mission and mechanization of Apollo program together with space technology environment for the lunar operation.

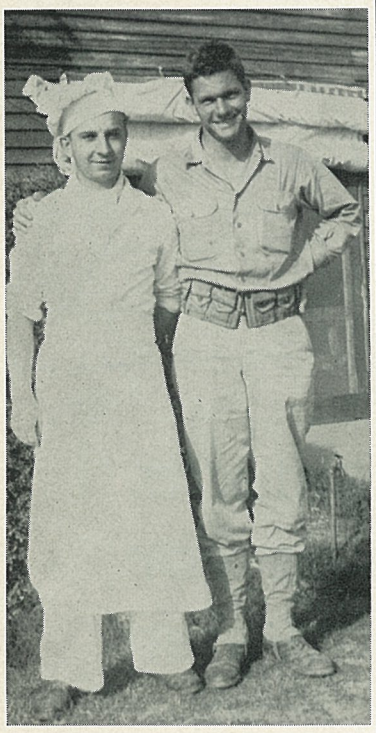
ARRIVAL—Air Force C-130A transport from Patrick AFB, Fla., is greeted by GD/Convair team on touch down right on minute, 10:34 a.m., Sept. 24. It will be in experimental 30 days from arrival for installation of new-type directional airborne antenna receiving system being developed for AF by GD/Convair.

A 'Cook's' Tour

GD/FW Man Reunited in Europe With Friend He Knew as POW

A friendship with a former German prisoner of war led to a two-week "cook's" tour of Europe recently for W. K. Browne, Dept. 24-1, GD/Fort Worth.

Conducting the auto trip across the continent was J. H. Seidel, a German who was captured in North Africa in 1943 and later sent to a POW camp at Donaldsville, La. It was here in 1946 that Browne, then a GI on special duty, befriended him.



REUNION — GD/FW's W. K. Browne, Dept. 24-1, is at right as he appeared in 1946 photo with German friend, J. H. Seidel, then serving as chef. They were reunited on tour of Europe recently.

Seidel, whose father was ousted from a government post in pre-war Germany for opposing Naziism, became mess sergeant at the Louisiana camp mainly because he could speak English.

"So you can see why he promised me a 'cook's' tour if I would come to Germany after the war," Browne said.

Driving Seidel's German-made Ford (a compact model), the twosome visited Holland, Belgium, Paris, Nice, Riviera, Italian Riviera, Genoa, Monaco, Milan, Switzerland and Austria.

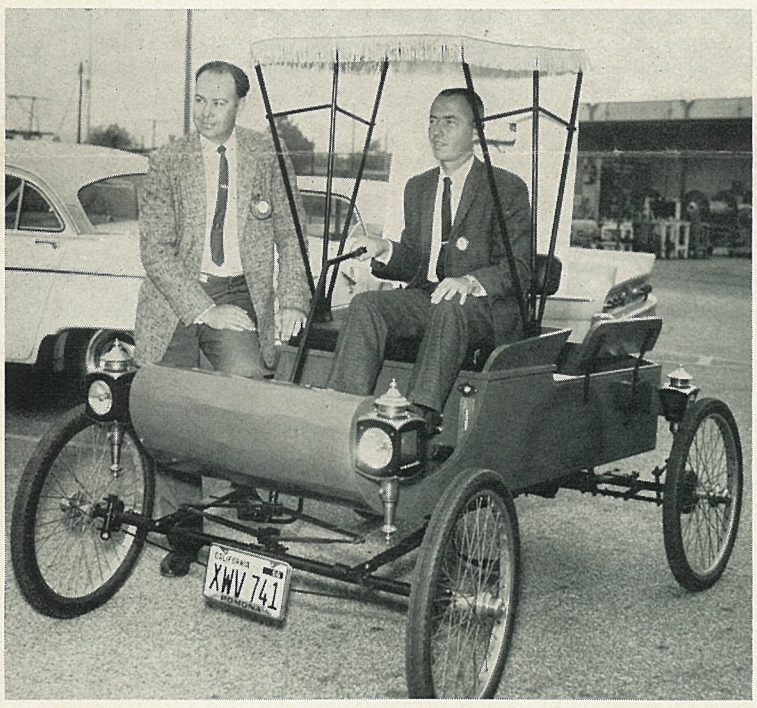
"We were able to get along in all countries, since Seidel speaks English, German, Greek, Russian, Italian, and French!" Browne said.

A highlight was visiting Berchtesgaden, Hitler's retreat, still showing hits from artillery and small-arms fire.

"But most of the towns in Western Germany that had been hit hard by war have been rebuilt," Browne reported.

The tour ended at Seidel's home in Dillich, a small town in central West Germany, just across the border from where Seidel made his escape from East Germany in 1949.

Seidel's wife and two children watched the family general merchandising store while he and Browne made the tour.



1901 OLDS—Replica of early-age motor vehicle attracted much attention as it was being parked at GD/Pomona by builders J. J. Eirich, left, and W. C. Dysart (both Dept. 6). Two years of spare-time work and $650 in materials went into project.

Two-Year Job of Building Auto Of 1901 Vintage Ends: Cost, $650

Two General Dynamics/Pomona employees have built a 1901 Oldsmobile—complete with fringe on top. Two years of spare time work and $650 in materials were required.

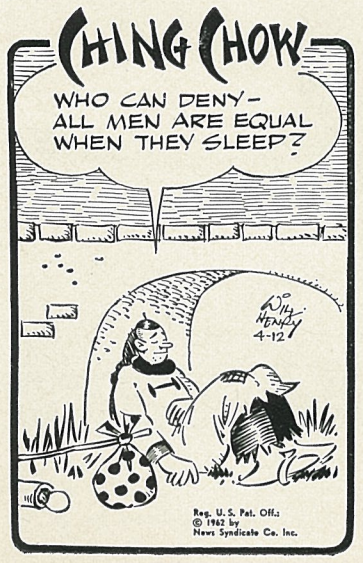
W. C. Dysart, component test laboratory, and J. J. Eirich, Red-eye project office (both Dept. 6), started by obtaining plans (cost $5). Working in Dysart's garage, they cut out the steel parts using 4 dozen hacksaw blades in the process. All wood parts were made by hand.

Purchased parts include head lamps, wheels, Clinton engine, Cushman transmission and 26x-2 25-inch tires.

While authentic in appearance the replica has some features never dreamed of in 1901. To meet motor vehicle code regulations, the two auto manufacturers had to provide modifications.

Sealed beam headlights, directional signals, stop lights and brake lights were added to the 400-pound vehicle. The state calls it a 1962 model (year manufactured).

The 1-cylinder 4-hp engine develops speeds up to 25 mph. Two speeds forward and one reverse are provided. Gas mileage experiments are in process with 60 miles per gallon expected.



Convair Son Sleeps With Padres Bat

Little Stephen Carter, going on 5, had the thrill of his life when he came home from his first big-league ball game recently with a real honest-to-goodness Padres bat.

The bat, a damaged one used by Chico Ruiz, Padres shortstop, became Stephen's most prized possession (and sleeping companion).

He was given the bat at one of the closing games of the season when his father, Bill Carter of GD/Convair motion picture section, took him down on the playing field to let him "touch" home plate.

Divisions Join To Form Value Control Group

Six General Dynamics divisions and the Corporation's Canadian subsidiary will join to establish a GD Value Control Committee, E. W. Feddersen, GD director of manufacturing engineering, has announced.

Value engineering experts from these divisions will meet at San Diego next month, Nov. 12-13, to organize a central committee for the purpose of fostering better planning for value programs, exchange of ideas, and shortening of lines of communication through personal contact.

Invited to the GD/Convair-hosted session are H. P. Williams of GD/Convair, E. D. Heller of GD/Pomona, George Robertson of GD/Astronautics, W. E. Emish of GD/Fort Worth, M. M. Reeder of GD/Electronics, F. Kohrs of GD/Electric Boat, and W. W. McKenzie of Canadair Limited.

Scientist, Engineer From GD/FW Honored As Paper Accepted

"Specification and measurement of reactor neutron spectra," a paper co-authored by Dr. John Romanko, staff scientist, and, Warren E. Dungan, senior nuclear engineer, of GD/Fort Worth's nuclear laboratories, has been accepted for presentation by International Atomic Energy Agency in Vienna, Austria.

Dr. Romanko will present the paper at the symposium on "neutron detection, dosimetry and standardization," to be held the week of Dec. 10 at the Rutherford High Energy Laboratories in Harwell (Berkshire) England.

United States participation in this international conference was arranged by the Division of Special Projects of the Atomic Energy Commission, which coordinated participation. Selection of papers for presentation was made by IAEA.

Many nations have been invited to participate, with papers to be given in four languages: English, French, Russian and Spanish.

Data Assoc. Elects Bond and Krinitsky

Two General Dynamics men hold offices in the San Diego Chapter of Data Processing Management Association, following recent election of slate for the coming term.

Roy Bond of General Dynamics/Electronics data processing is national director and Harold Krinitsky of GD/Astronautics test evaluation is a member of the board of directors.

Newly-elected president of the organization, formerly known as the National Machine Accountants Association, is William Simons, chief of data processing for Ryan Aeronautical Co.

Save Material—Don't Throw Your Job Away!

SWEET DREAMS — Sleeping five-year-old Stephen Carter is snapped by father, Bill (GD/Convair Dept. 16-4), as he cuddles beloved Padres bat.

'Resources Economics' Section Eyes GD/Convair Power Costs

GD/Convair's annual electrical bill would keep about 3,500 homes well-heated and lighted for a year, at least in Southern California temperatures.

It costs the division over $1 million yearly to keep the machinery turning at Plant 1, Rose Canyon, and the ramp, pointed out Vern Sharp, chief of maintenance and construction, as he urged everyone to join in the battle on electrical costs.

Major factors in high usage of electricity are production machines, office machines, wind tunnel apparatus, lighting and air conditioning equipment. An average machine tool, such as a No. 5 or No. 6 milling machine in production machine shop uses over $200 worth of electricity a month.

Sharp listed several ways in which everyone can help keep down the expense:

1. Keep doors closed, as much as possible, in all air conditioned areas. (It takes three tons of air conditioning to maintain pace with one door left open for a short time.)

2. Turn off all machines when not in use.

3. Do not turn on lights in an area where they are not needed, and turn off lights when the area is to be left unoccupied.

4. Use only lights and electrical devices absolutely necessary for evening or weekend tasks.

"Conservation is everybody's business!" he stressed.

"Cooperation of employees has been exceptional to date, but all things can be improved.

"Our present and future contracts have and will be won in a competitive atmosphere of low costs, exceptional engineering, and reliable manufacturing. As we all know, bid contracts are submitted on the lowest cost possible, and this means we must keep our overhead expense to the very minimum."

In the last nine months nearly $50,000 has been slashed from electric power costs through projects initiated by Resources Economics section of industrial engineering in cooperation with the Utility Survey Corp.

Elimination of unnecessary lighting throughout the division has shaved $15,000 from electrical bills; reduction of weekend and off-shift kilowatt consumption has saved $23,510 to date; cancellation of an electrical alternate service agreement is saving $1,087 a month.

Other projects are under study, said Sharp, who urged anyone with a suggestion for electrical power conservation to call Resources Economics Center, ext. 1640, Plant 1, or mail it to Vic Janusz, coordinator of Resources Economics, mail zone 23-30.

$30,000 Cost Cut Accomplished By GD/Astro in Utilities Area

Changes instituted in the operation of heating, ventilating and air conditioning systems at General Dynamics/Astronautics are expected to result in savings of almost $30,000 in the coming year.

Such savings could constitute a healthy portion of a goal of $200,000 GD/Astro hopes to realize in reducing utility costs currently topping a million dollars annually.

Automatic programmers have been added to heating and ventilating systems serving Bldgs. 1, 2, 3 and 4. They shut off all systems at pre-set times. Plant engineering personnel handle the same assignments in other areas. Thus, unless these systems are required, they are shut down.

Resulting savings are shown in electricity required to operate such units as fans, pumps, etc. This savings will be over $15,000. Other savings are shown in reduction of natural gas required to operate boilers. This is calculated at about $14,400 for the next year.

Studies are now being made of all air conditioning units to determine possible areas where savings can be realized. A practice of shutting down all units promptly at the close of shifts is being followed.

Astro employees working in air conditioned areas can aid the effort greatly by seeing that all doors and entrances are kept closed at all times.

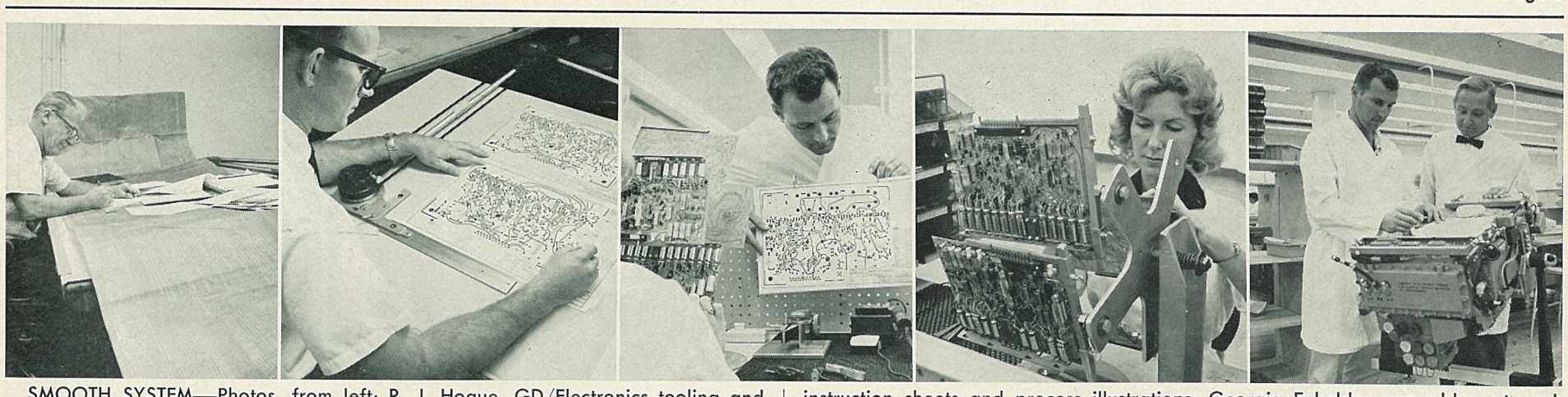
All Five JAL 880s at Work

All five of Japan Air Lines' Convair 880-Ms now are in service over the airlines' world-wide routes, following arrival in Tokyo of the last airliner early last month from San Diego where it had been in JAL pilot training.

Jerry Dugan, GD/Convair field service representative with JAL, reports that 880-Ms are scheduled for two daily round trips, Tokyo to Sappora; one round trip a day, Tokyo to Fukuoka; five round trips each week, Tokyo to Hong Kong; three round trips a week, Tokyo to Djakarta; and two round trips every week between Tokyo and London.

Inauguration of the Tokyo to London "Silk Road" flight was set for Oct. 4 following a proving flight on which Court Zeiss, GD/Convair rep, accompanied the crew.

Stops en route are at Hong Kong, Bangkok, Calcutta, Karachi, Kuwait on the Persian Gulf, Cairo, Rome, Frankfort, London, and return.



SMOOTH SYSTEM—Photos, from left: R. J. Hogue, GD/Electronics tooling and planning analyst, at San Diego, interprets blueprints to break down production task; F. L. Letzring Jr., illustrator, draws process sketches for placing components, each spelled out by color, bins, quantity, part numbers; R. L. Helton, planner, attaches instruction sheets and process illustrations; Georgia Enhelder, assembler, at work station; finished assembly, a modulator, signed off in final inspection by Darwin Olson with George Patrick of production engineering watching. Sequenced and concentrated system cuts costs, increases reliability.

GD/Pomona Top Scholars Feted at Plant

Pomona winners of General Dynamics Corporation National Merit Scholarships for 1962 were honored guests at a luncheon held prior to start of the fall college term.

Beth Ann Burdick, daughter of Mrs. Florence W. Burdick (Dept. 6), graduated this spring from Covina High School and will major in biological sciences at Stanford University, planning to be a medical doctor.

Robert A. Edgell, son of Alan D. Edgell (Dept. 6), graduated this spring from Glendora High School and will major in physics at Pomona College, planning to be an engineering physicist.

Attending the luncheon were parents of the scholarship winners, Mrs. Burdick and Mr. and Mrs. Edgell, and representatives of General Dynamics/Pomona: Jack Mason, director of engineering; K. G. Beyer, manager of engineering personnel and training; R. A. Dutton, chief of engineering administration; B. P. Schroeder, chief of educational services; O. C. Burd, engineering personnel administrator; D. A. Underhill, structural dynamics section head; W. J. Whitehill, computing section head, and A. E. Lambert, engineering training representative.

New Streamlined Assembly System Adopted by GD/Electronics at SD

A "containment" policy can be applied as effectively to limited production as to limited warfare, say General Dynamics/Electronics production engineers who have evolved a system which is streamlining assembly of electronic units at the San Diego facility.

The system, unique in that it confines all operations necessary for assembly of any one type of electronic unit to a designated production area, is designed primarily for orders of 100 to 250 units.

Sub-assembly is defined in terms of each operation to be performed, work station location, equipment and hand tools for each operation, plus the time required to perform each operation.

"This method replaces the former assembly method which requires an assembler to work directly from blueprints and stock lists without any idea of the assembling order or description of parts or where they should be placed," explained George Patrick, supervisor of methods, process specification, and production plans. "The sequenced method drastically cuts the amount of time involved in figuring out where to start and what to do next."

Production engineers sequence all assembly operations to provide minimum operation cycles and increased efficiency through specialization. Production areas are identified, divided into work stations based on 40-hour tasks. All parts used on a station are stocked in marked compartments in sequence ready for use. Production aids, holding fixtures, and special tools required for the task are located on-station. Personnel are assigned to these stations with attention to special training, talent, or abilities. Proper "personal" tools for each operator are determined and required. Tools that may damage parts are prohibited. All special tools are furnished by GD/E.

"We can credit this 'containment' type of production as a major step in placing GD/Electronics in a competitive position in the field of military electronics," said J. P. Morris, manager of production engineering.

"The operator is trained for one type of assembly. Thus, with all operations sequenced, she becomes thoroughly familiar with the particularities of the assembly and can achieve the highest level of consistency and quality."

J. H. Thompson, GD/E manager of operations, enumerated further advantages of the step-by-step concentrated method of limited production, namely, "lower unit cost, faster delivery, and higher reliability."

Detailed operation sheets together with graphic illustrations spelling out each assembly step set the system into motion.

"Production engineers work directly with operators at the work stations, helping them to understand perfectly all instructions and incorporating improvements suggested by operators themselves if they find a more efficient step in the paperwork or sequencing. Planners are assigned to each type of 'black box' to maintain all stations assigned to its manufacture," said Patrick.

GD/Convair Clubmen Are Pomona Guests

Four officers of the GD/Convair Management Club were special guests of the GD/Pomona club at its Sept. 14 meeting.

L. G. Lawson, past president, attended in his official capacity as president of San Diego Area Council of NMA. E. R. Fink, GD/Convair Management Club president, also was present, together with Paul Hamm, first vice president, and Ralph Montgomery, second vice president.

GD/Astro Folk at Vandenberg Boast Varied Sports Program

VANDENBERG AFB—Another season is under way here for what is probably one of the most active ARA-sponsored recreational programs operated for off-site personnel within General Dynamics/Astronautics.

This installation began its recreational program almost as soon as enough employees were on hand to form a bowling team. Since then it has continued to grow, both in participation and the number of activities available to Astro families.

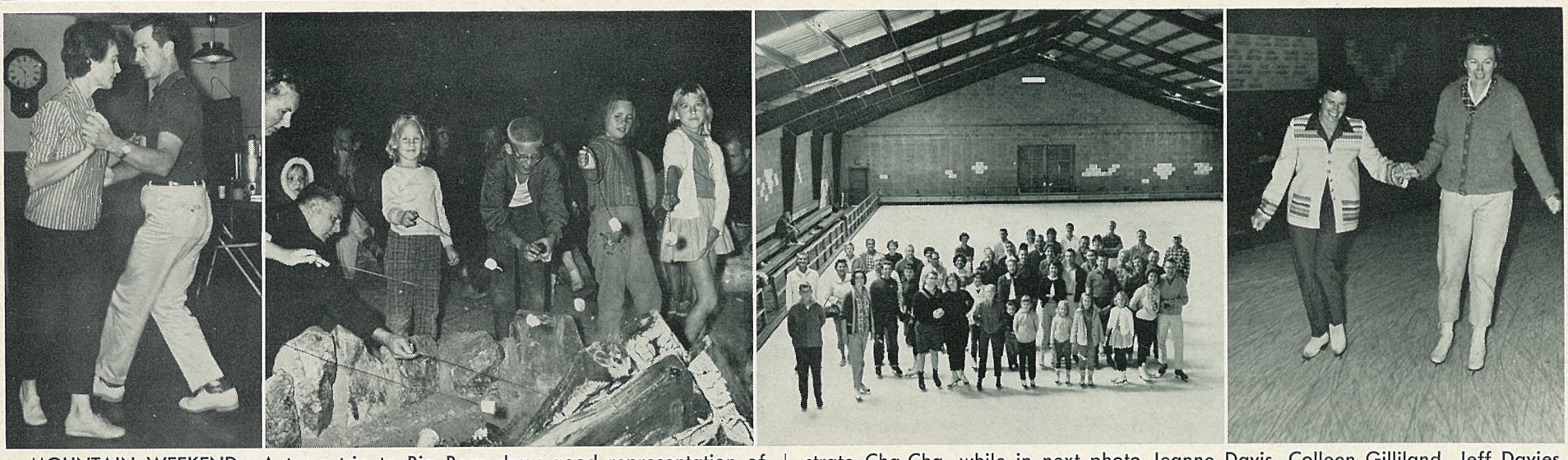
Ross Workman, employee services representative here, is a key man behind the program. A Certified Industrial Recreation Administrator, one of two at Astro, he has guided the program for a number of years.

The ARA Employees' Council here guides all activities. Current officers are E. C. "Gene" Sims, president; E. A. "Ernie" Millar, vice president; A. B. "Augie" Daddi, treasurer; and C. A. "Arlene" Barnell, secretary. Council members include M. R. "Don" Wilson, bowling; D. M. "Don" Jardee, boat club; James Batson, golf; R. L. "Pete" Peterson, softball, Sam McCullum, basketball; and two acting commissioners, Katherine Goin, horseback riding, and Leo Bernitz, rod and gun club.

Aiding the program are natural surroundings featuring hiking, swimming, fishing, hunting, etc. as well as bowling and other sports. Both the cities of Lompoc and Santa Maria welcome Astro participation in civic recreation programs.

Planned for this fall is the annual all-Astro picnic which takes the form of a clam bake at Pismo Beach this year for the first time, Workman said.

AROUND ASTRO BASES—GD/Astro folk at Vandenberg AFB have been among most active in recreation programs off-site. (1) Ross Workman, right, employee services, checks golf handicaps with Otis Tucker and Marilyn Murray; (2) and (7) are photos of Vandenberg basketball team that will see action this fall; (3) golfers turn in cards for sweepstakes; (4) deep sea fishing out of Morro Bay is popular with VAFB people; (5) 1961 bowling trophy winners. (6) Craig Bramley of industrial relations at Walker AFB presents new bicycle to Alonzo Orosco whose old bike was washed out in a truck collision. Alonzo suffered minor injuries. (8) Walker AFB Astro Wives Club held style show recently. Among models were, from left, Donna Magee, Karen Mooney, Marilyn Mooney, Cleo Magee.



MOUNTAIN WEEKEND—Autumn trip to Big Bear drew good representation of GD/Astro, GD/Electronics and GD/Convair folk. Sponsored by ARA-CRA Ice Skating Club, weekenders did more than skate. At left Bob and Peggy Clauser demonstrate Cha-Cha, while in next photo Jeanne Davis, Colleen Gilliland, Jeff Davies, Kim Gilliland and Pam Chana toast marshmallows. At far right are Esther Germeraad and Jeanne Davis.

Dynamics Sailplane Pilots Will Compete at Elsinore

General Dynamics soaring enthusiasts will be among San Diego entries competing in weekend events Oct. 27-28 at Skylark Airport, Elsinore. The fall soaring meet is co-sponsored by Convair Recreation Association Glider Club and the Associated Glider Clubs of Southern California, Ltd.

Contestants and meet officials will include Walter Mooney of General Atomic; Duke Stallings, CRA Commissioner Gene Whigham, and Paul La Frenier of GD/Convair; Gene Cain, A. J. Owens, Oakley North, J. W. Petre, and Sterling Starr of GD/Astronautics.

Approximately 20 pilots are expected to compete, said Whigham, with 10 to 15 sailplanes anticipated.

Saturday's task will be for maximum distance flying. Sunday's event will be a race horse start speed dash around a triangular course. Prizes will go to pilots making the three best flights each day. Scoring is on a handicap basis.

"Elsinore fall weather is pleasantly warm and just right to provide many thermals for good gliding," said Whigham, who emphasized that spectators are invited to attend.

Reliability Control Appointments Made;

Appointments within the General Dynamics/Astronautics reliability control department have been announced by P. I. Harr, director of reliability control.

A. J. Woodington has been named manager of standards and calibration laboratories, reporting directly to Harr. In his job Woodington will have responsibility for all Astronautics calibration activities which are now consolidated under reliability control.

Three assignments within the Atlas weapons system (AWS) organization have been announced with all reporting to D. R. Archibald, AWS reliability control project manager.

Named quality control chiefs were G. E. Briggs for checkout and acceptance and R. E. Steele for off-site activities. I. E. Wissner heads administration and audit functions in the AWS reliability program.

Garden Clubs Set Show Date

Garden Clubs from GD/Convair and GD/Astronautics join forces Nov. 4 to present their annual Fall Show at the Floral Association Building, Balboa Park.

Commissioners Eugene Zimmerman (CRA) and Everett Henderson (ARA) have announced eight divisions, with a best of show award for each, as well as from two to six classes in each division.

Chrysanthemums, arrangements, corsages, roses and children's division events will be featured.

In Division One will be single chrysanthemums, while Division Two will include three blooms, Division Three features cushion type pompons and Division Four, button mums.

Division Five will include six classes in arrangements. Division Six will handle corsage entries. Children will compete in two age groups, 5 to 11 and 12 to 16 years, in Division Seven. Division Eight will feature roses.

Entries will be accepted from 7 until 11 a.m. Judging follows at that time, with the show open to the general public without charge from 1 until 6 p.m.

CRA Car Club's Economy Run Won by Astro Driver Smith

Sweepstake honors in CRA Sports Car Club's September rally, the Eagle Eye II Economy Run, went to E. L. Smith of the Astro Sports Car Club.

Smith navigated the 160-mile course in his Alfa-Romero with a fuel consumption of 56.4 ton-miles per gallon.

Twenty cars drove the back-country route through Campo, Julian, Ramona, Lakeside, and back to San Diego in the all-day Sept. 30 rally, headed by Chase Allen as rally master.

Allen said that the efforts of Astro Radio Club members manning checkpoint control were invaluable.

Other winners were Clark Kerr Jr., best Convair Sports Car Club driver; Smith, best Astro club driver and first in Class A, displacement of under 1,300 cc; E. N. Yeaton of Astro, first in Class B, 1,300-1,599 cc; Martin Larson, first, Class C, 1,600 to 2,699 cc; Kerr, first, Class D, over 2,700 cc.

ARA Commissioner E. S. Penick topped the sedan class with performance of his '53 Studebaker coupe. Penick also stood second in overall scoring.

CYCLISTS INVITED FOR 'POKER RUN'

Invitations have gone out to cyclists throughout Southern California and Arizona to take part in an Astro Motors-sponsored "Poker Run" starting at ARA Clubhouse Oct. 21.

This is an invitational event expected to draw both individual and club participation.

Entries will depart from 9 until 11 a.m., then cover a 110-mile course laid out in San Diego County, returning to the Astro plant later for timing.

Next regular Astro Motors meeting will be at 7:30 p.m. Oct. 17 at the ARA Clubhouse.

Highways Real Headache to H. L. Anderson, First GD/Astro Man to Retire at Edwards

EDWARDS ROCKET SITE—Highways, the cause of many past headaches, have called the first General Dynamics / Astronautics employee to retire here, Harold L. Anderson.

Anderson and his wife are off on a two-month motor trip that will take them eastward through New England, south to Florida and then westward to a home in Antelope Valley.

But highways haven't been so interesting in the past.

Anderson owned a grape farm in western New York state that was split by construction of the New York State thruway in that area. He packed up and moved to Tarzana, near Los Angeles, and began to raise mushrooms. Another freeway chopped up his farm and he migrated to Edwards, going to work for GD/Astro.

Anderson and his wife plan to return here and try raising mushrooms again. That is, if the new Antelope Valley freeway leaves him enough land, after cutting periously close to his home.

Slide Show Repeat Set For 2nd Shift

A slide show from the American Numismatic Association will entertain members of Coineers, ARA coin club, meeting, at 7:30 p.m., Oct. 17 in ARA Clubhouse.

A second-shift club unit will view the show at 1:30 a.m., Oct. 18, when a business meeting, display competition and swap session are planned.

A display competition, as well as a coin auction, is also slated for the first shift meeting.

Salvage Yard Sked

Salvage yard schedule for next four weeks:

GD/Convair—Oct. 13, 27.

GD/Astro—Oct. 20, Nov. 3.

Sr. Flight Test Engineer Dies

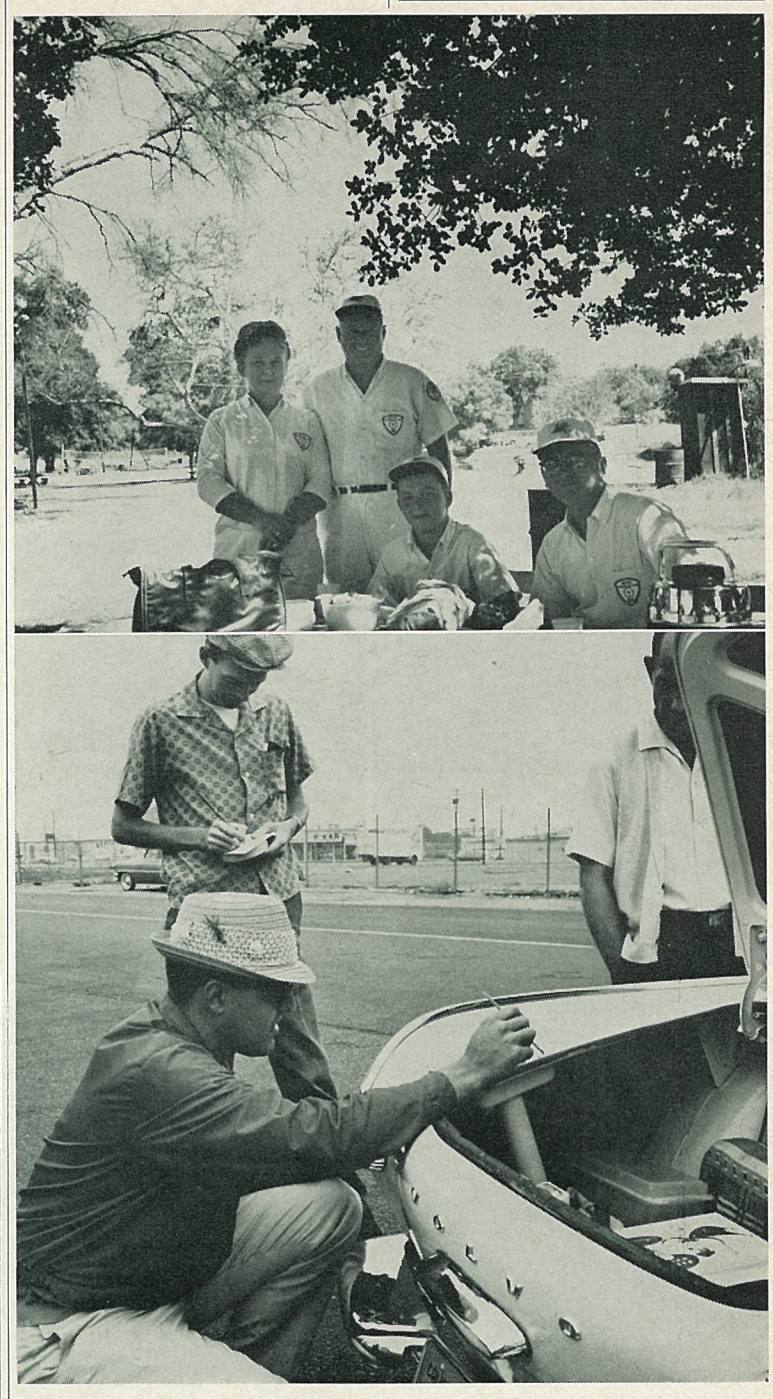
Funeral services for C. A. "Charlie" Walruff, senior flight test engineer at GD/Astronautics, were held Sept. 26 in San Diego. Walruff died unexpectedly Sept. 20 while attending a physical education class at San Diego State College.

Walruff joined Astronautics in 1956 after retiring from the Navy as a commander the previous year. He enlisted in the Navy in 1924 and moved into the commissioned ranks in 1942.

One of his early assignments at Astro was to help activate static test sites at Edwards RS and Sycamore Canyon. Recently he has coordinated reports between engineering staffs at the home plant and test bases.

During World War II King George VI cited him with the Most Excellent Order of the British Empire for development work in airborne radar techniques.

FAREWELL—H. L. Anderson (in cap), first Astro employee to retire at Edwards RS, is shown during farewell party with, from left, V. L. Allwardt, Edwards RS manager; L. M. Barnes, and W. R. Jackson, manager of test operations, and friends.



"ECONOMY" DRIVERS—Upper shot catches overall winners of CRA Sports Club Economy Run, Mr. and Mrs. Elmer Smith of Astro, standing, and ARA Commissioner E. S. Penick and son, at Picnic Lake Park. Lower photo was taken at starting point with Dick Perkis of CRA club sealing gas tank of Martin Larson's Volvo while John McKay records technical inspection.

ARA Calendar

(GD/Astronautics Recreation Association has some 40 activities in operation for employees. For information, call ARA Headquarters, ext. 1111.)

★ ★ ★

ASTRO LENS—Meeting 7:30 p.m., Oct. 21, Photo Arts Bldg., Balboa Park. Topic is multiple exposure techniques.

CHESS — Plant Championship opens 8 p.m. tomorrow (Oct. 11), ARA Clubhouse.

COINS—First shift meets 7:30 p.m., Oct. 17, ARA Clubhouse; second shift at 1:30 a.m., Oct. 18.

EXPLORERS—Field trip Oct. 13-14 to Spooks Canyon, San Marcos.

GOLF—ARA Sweepstakes, Bonita, Oct. 20-21. Applications at ARA Headquarters, ext. 1111, through Oct. 17.

MOTORCYCLE—"Poker Run" over 110-mile course starts 9-11 a.m., Oct. 21 from ARA Clubhouse. Astro Motors meeting 7:30 p.m., Oct. 17, ARA Clubhouse.

RADIO—Meeting 7:30 p.m. tonight (Oct. 10), ARA Clubhouse. Guest speaker.

SINGLE ADULTS — Dance-party 8:30 p.m., Oct. 27, ARA Clubhouse. Admission is 50¢ with Astro ID card.

STAMPS—Meeting and trading session, 7:30 p.m. tomorrow (Oct. 11), ARA Clubhouse.

WIVES' AUXILIARY—Luncheon meeting Oct. 17 at Rose Mandarin Gardens, 8552 La Mesa Blvd., La Mesa. Social hour, 11:30 a.m., luncheon at 12:30. Reservations by Oct. 15 with Mrs. Louis Ferriera, BR-3-7634.

McPherson's 294 Edges Sanderlin

G. B. McPherson fired a 294 out of a possible 300 to win first in Astro Pistol Club activities that are showing extremely close competition of late for all classes.

Trailing McPherson in the master class was Ralph Sanderlin with a 293. Mort Williams (288) and Don Smock (283) in the expert; Bill Winchell (260) and Les Vivian (259) in the sharpshooter; and Bill Worthington (234) in the marksman class also emerged as victors.

McPherson doubled by scoring a 287 in the short National, followed by Sanderlin with a 268 and Ronnie Legg with a 260.

Photorama Rally Will Be Featured

Planning for another of its popular Photorama Rallies will be featured at the meeting of ARA Sports Car Club at 7:30 p.m., Oct. 16 in ARA Clubhouse.

George Lahey will be rally master for the event slated Nov. 25, in which participants are guided through a rally course by driving instructions in the form of a set of photographs.

The meeting is open to all Astro employees and dependents, while employees of all General Dynamics divisions in the San Diego area will be welcome to take part.

Rockhounds to Talk About Field Trips

Field trips, past and present, will be discussed tonight (Oct. 10) at 7:30 when Astro Rockhounds gather at the ARA Clubhouse.

On the slate will be an October field trip to Trona for Death Valley onyx. Earl Manor will present a slide program involving Arizona petrified forests.

September door prizes were won by Bill Barto, Don Seitz, Bob Pettyjohn and Jim Sayler.

Junior Bowl Loops Offered Youngsters

Astronautics children interested in taking part in ARA-sponsored "small fry" bowling leagues may report at 10 a.m. Saturday to Clairemont Bowl.

Both boys and girls from 7 years through 18 are eligible. Those from 7 to the teens will participate in a bantam league. Teen-agers will take part in a junior league. Free instruction is offered.

Astro Skiers Meet Tonight

First meeting of the season for Astro Skiers, ARA snow ski club, will be held at 7:30 p.m. tonight (Oct. 10) in ARA Clubhouse.

All GD/Astro employees and dependents interested in this leading winter sport have been invited to attend by Larry Atwell, ARA commissioner.

On the agenda for the opening session is election of officers to guide club affairs throughout the season, and selection of a club candidate for queen of the annual San Diego Sno Ball next month.

Club members will be eligible for valuable gift certificates, one of which will be awarded as a door prize at each of the club's monthly meetings.

Club membership costs $1 per person, and entitles the holder to participate in all club functions. The group conducts ski trips to local snow areas throughout the season, and plans a four-day trip to a major skiing area over the New Year's holidays.

A variety of entertainment—including yodeling—is featured at business meetings. Refreshments are served.

Leads Assigned In Astro Play

Both "old timers" and new faces will appear before audiences attending ARA Astro Players production of "Roman Candle" when it opens for a six-day run in late November.

Director Dick Elbe has completed casting for the show, and rehearsals are under way.

Leading roles have been assigned to Dan McLaughlin and Joyce Crawford, with Jim Lakin and Nancyjane Holtz in major supporting parts.

Others in the cast include Art Wright, Joe Tricolli, Al Varone, Allen Paul, Charles Shoemake, Jim Schoff, Shirley McLaughlin and Julius Rose.

Lakin is the show's producer, with Milt Ball as production manager. Staff members include Varone, Elva Cambron, Rose Porter, Paul Porter, Tom Todd, Bob Thornton, John Streiff, Paula Hart, Millie Rankin, Genger Koger, Chris Nordenson, Jimmy Rankin and Miss Holtz.

Varied Card Games Will Mark Benefit

Bridge, canasta, pinochle or players' choice will be featured at this year's benefit card party to be sponsored by Astro Wives' Auxiliary at 8 p.m., Oct. 26 in ARA Clubhouse.

Proceeds will benefit needy San Diego area children, hosted annually at a Christmas party by ARA and Employees' Con-Trib-Club.

Tickets are available for donation of $1 from employee services outlets, Wives' Auxiliary members, and Mrs. O. C. Priest, benefit chairman, BR-7-2309, or Mrs. Donald Hatfield, ticket chairman, BR-3-2757.

Table and door prizes will be awarded.

Tickets For Hindu Dancers Offered

Some tickets for Uday Schanker Hindu dancers appearing Oct. 12 at Russ Auditorium may be available to GD/Astro employees and ARA Hi-Fi/Music Club members through Commissioner Ben Lachance, ext. 2324, or Peg Lewis, ext. 4013.

Ticket availability will be on a first-come, first-served basis.

At its meeting yesterday (Oct. 9) the club elected officers for the coming year.

SWEEPS SLATED AT BONITA LINKS

Starting times for October (20-21) golf sweepstakes slated for Bonita Golf Course are being accepted at ARA office, ext. 1111. Deadline for entering is Oct. 17.

HOME TEAM—Members of Astro softball team close ranks after winning La Mesa Invitational Tournament and ending season with 38-10 won-lost record. Hard-driving unit was edged from City League AAA championship in play-offs. Commissioner Forest Erwin is standing at left.

ARA Kart Club Meets Oct. 11

Newly-organized ARA Kart Club will meet at 7:30 p.m., Oct. 11 in ARA Clubhouse.

Designated as "novice night" by Denny Evans, newly-elected president, the meeting is designed to introduce prospective members to some detailed points of Kart racing. Karts will be displayed, movies shown, and there will be a question and answer session.

"The club will feature competitive racing events plus sessions devoted exclusively to family fun," Evans said.

Tourney to Select '62 Chess Champion

Points will get you nothing but elimination tomorrow (Oct. 11) night at 8 when Astronautics Chess Club begins its annual tournament to select a 1962 plant champion.

This is an elimination event that will continue at one round per week until only the champion is left.

A game lost will mean one point, a draw game will count a half-point. Three points garnered and a player is out of the running.

No advance registration is necessary, although those desiring to enter are urged to be on hand in advance of the 8 p.m. starting time, according to ARA Commissioner Jack Horning.

Tennis Clinic Series Slated For ARA Area

First of a series of monthly tennis clinics sponsored by ARA Tennis Club will be held at 10 a.m., Oct. 20 at courts in the ARA Area.

Open to all GD/Astro employees and dependents, the free clinics will provide group instruction in tennis fundamentals for beginning players or those desiring to improve their game. Guidance will be provided by members of ARA Tennis Team with occasional sessions under local professionals.

Participants are asked to bring their own rackets and shoes. Balls will be furnished by ARA. No advance registration is required but additional information is available from Ben Cendali, ARA commissioner, Sycamore ext. 58.

Helix Toastmasters Elect GD/Astro Men

Four of six officers installed recently by Mt. Helix Toastmasters Club 126 are GD/Astro employees.

They include Seymour Zeenkov, president; Jack Fisher, administrative vice president; Glenn Vail, secretary; and Dave Rhoads, sergeant at arms. Past President Jim Johnson, and Cy Campbell, District 5 governor, who conducted the installation, are also employed at GD/Astro.

Astro Softballers End Season With Victory in Invitational

A first-rate season for Astronautics softball team was crowned with victory in the La Mesa Invitational Tournament concluding last week at Helix Field.

The team, under ARA Commissioner Forest Erwin, played AAA ball in San Diego City League. They won the first round of the season, placed second in a subsequent round, and were edged by a narrow margin in the play-offs.

In the La Mesa tournament, the Astro group won five consecutive games with Roy Neie, pitcher, allowing only three runs and 12 hits in the entire series.

Hitting honors in the final tilt with NAS Miramar went to Garfield Winters with a double in the second period, followed by a single from Whitey James. Winters had scored a home run in an earlier tournament game.

Astro dropped Miramar 2-0.

Totals for the year show Astro with 38 wins, 10 losses.

ARA Divers Cruise To Coronado Islands

A members-only boat trip was held by Astro Divers, ARA skin diving club, Oct. 6, to the Coronado Islands to dive for lobsters.

In mid-September the group held a spearfishing contest at Bird Rock. Winners were Bob Nicholas and Howard Gertzman.

Six club members are active in the underwater search and recovery team established by San Diego Council of Diving Clubs. Jorge Zorrilla and Cliff Kickbush, ARA commissioner, rank as lieutenants. Other participants are Frank Samuelson, Joe Walker, Nicholas and John Smaldino.

Zorrilla and Walker took part early last month in an effort to locate a girl lost in the surf off Baja California.

Astro Bridge Club Starting Library

Commissioner Art Saastad has invited all bridge fans among GD/Astro employees to participate in sessions of ARA Bridge Club, meeting at 7:30 p.m. Thursdays in ARA Clubhouse.

Players of all skills are welcome, and beginners will receive special attention, Saastad said.

Plans to acquire books for a club library are under way with the first order to be placed in the near future. Persons wishing the library to acquire a particular volume have been asked to contact G. M. Alford, ext. 1516.

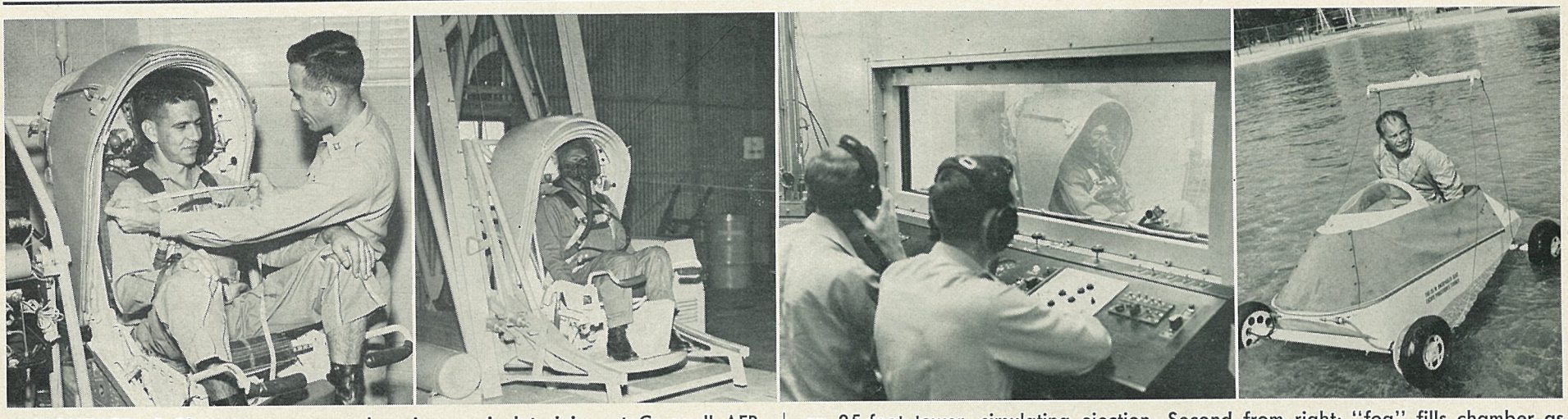
Atlas Missile Tops Trailer Club Entry

Sixty persons in 11 trailers represented Astro Travelers, ARA trailer club, at the Travel Trailer Club of America's Border District Rally at Del Mar Sept. 27-30.

Member Helen Marshall won first place in a hobby exhibit featured as a rally event, and the ARA group displayed a parade entry of a miniature trailer topped with an Atlas missile.

Other activities during the rally included games, a "crazy hat" contest, dancing exhibition and square dancing. Highlight was a potluck supper Saturday evening.

RALLY 'ROUND—Miniature trailer with Atlas and club insigne entered in parade at trailer club rally at Del Mar is surrounded by some 60 Astro Travelers members who attended event.



SEQUENCE—B-58 crewmen are undergoing survival training at Carswell AFB, Fort Worth. At top left Max Runyan, GD/FW Dept. 12, is "sized" for capsule by Capt. N. C. Nicholas. In next picture Grover Tate, also GD/FW, takes training ride on 25-foot tower, simulating ejection. Second from right: "fog" fills chamber as loss of pressurization is simulated. Far right: Fred Hewes, GD/FW, rehearses aquatic survival, after being lowered from 12-foot boom.

Double Whirling

Study Casts New Light On Vortex Phenomenon

Merwin Sibulkin has dived into the "bathtub controversy" and come up with scientific data that sheds new light on an old subject.

Sibulkin is a staff scientist at General Dynamics / Astronautics who specializes in fluid dynamics.

His findings were published in the September Journal of Fluid Mechanics of the Cambridge University Press, London, under the heading "A Note on the Bathtub Vortex."

The "bathtub controversy" isn't new, but has provoked some extensive coverage in news media, especially in the British Commonwealth. It concerns the swirling motion water makes on draining from a container such as a bathtub. Those interested want to know why it takes a clockwise direction in some tubs, a counter-clockwise direction in others.

This direction or motion is called the "bathtub vortex."

Strong support rallies around the Coriolis force theory involving the rotation of the earth on its axis. Believers say that motion in the northern hemisphere appears to be deflected to the right, while that south of the equator deflects left. This, they say, is why water supposedly exits in a counter-clockwise direction here and in a clockwise direction south of the equator.

As a pure science study, one of many performed by General Dynamics specialists, Sibulkin spent about three months experimenting on the subject. He was aided by Norman Fong.

Experiments developed strong evidence that:

(1) If water is allowed to settle not more than a few hours, the exit rotation is actually the direction in which the container is filled. It must settle several days before it exits counter-clockwise every time.

(2) As the liquid surface approaches the bottom of the tub, the direction of rotation is reversed!

Thus, a single tub may drain in both a clockwise and counter-clockwise direction.

Sibulkin and Fong fabricated a cylindrical "bathtub" of transparent Lucite. It was 12 inches in diameter, four inches high and had a centered outlet. Capacity was about two quarts, although the water level in tests varied greatly. A filler tube could be angled to allow water to enter from either direction at a standardized rate.

As an aid to studies, powdered substances or dye were added to the water, either at a fixed rate or to color the water entirely.

Pulling the outlet plug started an observation "run."

After noting the unexpected reversal phenomenon in most of the early "runs," emphasis was then switched to determining why it occurred. A thin cork disc was floated on the surface. As the water level dropped, the disc centered over the vortex above the outlet, making it possible to study closely the rotation sequence near the bottom of the tank. It also made possible the recording, through high speed motion picture photography, of data to support the findings.

More Europe Cities Served by Jet 990s

Convair 990s are touching down at new ports as Swissair and SAS send their newest version jetliners into more and more European cities.

SAS has added Dusseldorf and Frankfort, Germany, and Rome, Italy to its 990 routes from Copenhagen to Tokyo. Swissair now is operating 990s seven days out of each month on round trip flights from Zurich to London and Geneva to London. It also is using a 990 on Zurich to Barcelona, Spain, runs.

GD/FW Man Elected National Director

R. R. Massegee, president of the Stone Steppers, the Rockhound activity of GD/FWRA, has been appointed director of the American Federation of Mineralogical Societies for a two-year period beginning Nov. 1, 1962.

The societies consist of six regional federations, each of which is represented in the American Federation by two directors and the president.

Improvement in Nameplate Fabrication Results in Substantial Expense Cut

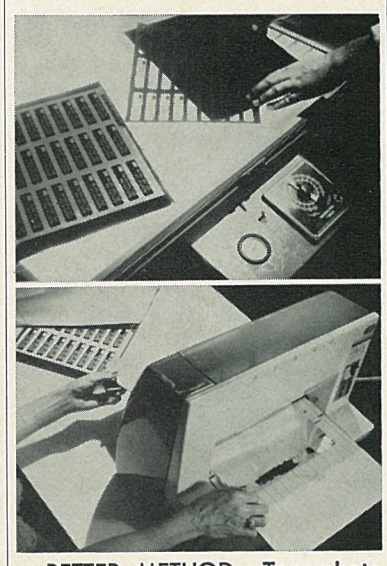
Even a relatively small item—a decal—is considered in cost-saving plans of a missile program.

One decal wouldn't be regarded as a weighty expense. But military specifications often require more than 500 decals per missile for various identification purposes such as the contractor's name and assembly inspection date or for operational instructions. This multiplies pennies into valuable dollars.

A 40 per cent savings amounting to about $4,000 annually occurred recently at General Dynamics/Pomona as the result of a nameplate (decal) fabrication improvement study.

The basic recommendation of the study was use of plain aluminum foil rather than foil with an adhesive backing. This change results in a labor-time reduction of about 70 per cent for engraving (by black-light printer) nameplates on the unbacked aluminum foil.

After completion of the engraving process, adhesives are easily applied. The new process requires less operator skill, yet produces a much higher quality of decal.



BETTER METHOD—Top photo shows how decals are engraved on plain aluminum foil by black-light printer. Adhesives are easily applied (as shown in bottom photo).

B-58 Crewmen Indoctrinated In Escape, Survival Technique

A 10 G ride up an escape tower, a survival workout in water and a simulated loss of air at 50,000 feet are all part of a B-58 emergency escape capsule training course in progress at Carswell AFB.

All B-58 airmen — including GD/FW flight personnel — are undergoing the realistic 18-hour training at Carswell's physiological center under guidance of Capt. N. C. Nicholas, chief of physiological training.

First hour is spent in "man-sizing," an orientation session to determine if a man fits inside a capsule and can carry on necessary manual operations.

"By measuring about 300 men, we hope to establish some definite size standards for B-58 airmen," said Captain Nicholas.

"The job isn't an easy one. One officer 6-feet, 6-inches tall passed sizing requirements with flying colors, as did another who was 6-feet, 3-inches tall and weighed 246. But one officer who weighed 206 and stood slightly over six feet didn't make it."

An oversize wrist-to-elbow measurement, arm length, or back width, and other such measurements can disqualify a man. But to date, only a very small percentage have failed to breeze through the sizing routine. A man with a size 13 shoe made it with some room to spare—but his foot was built "right."

After sizing up his man, Captain Nicholas sends him for a realistic ride on a 24-foot tower.

In this exercise, the crewman initiates encapsulating action and theoretically hurtles out of his B-58 station into the slipstream.

"The jolt he gets in this ride, operated on air pressure, is about 10 Gs," Captain Nicholas said. "But it's a little rougher than the one he would feel from a rocket-powered ejection."

Sliding back down the tower, the crewman is subjected to a force comparable to the one felt when the capsule hits denser air, automatically triggering the main chute. The capsule slides out on a rail extension, placing the occupant virtually "on his back," very much like the position he would be forced into in a real ejection from a B-58.

"In this particular exercise, we have the option of feeding in malfunctions anywhere during an 'ejection,'" Captain Nicholas said. "This prevents the exercise from becoming too routine."

Procedures for water landing are a little different, so the crewman spends much of the next three hours afloat in a capsule in the Carswell swimming pool.

Dropped from a 12-foot boom, he must open the capsule's protective inner curtain, don down clothing, find and operate his radio, install the capsule's snorkel and discover how to "browse" around for long periods in a space considerably smaller than his shower.

Finally, the B-58 crewman gets a workout in decompression techniques in the high-altitude chamber.

The capsule occupant is elevated from 21,500 to a simulated altitude of 50,000 feet, where decompression occurs.

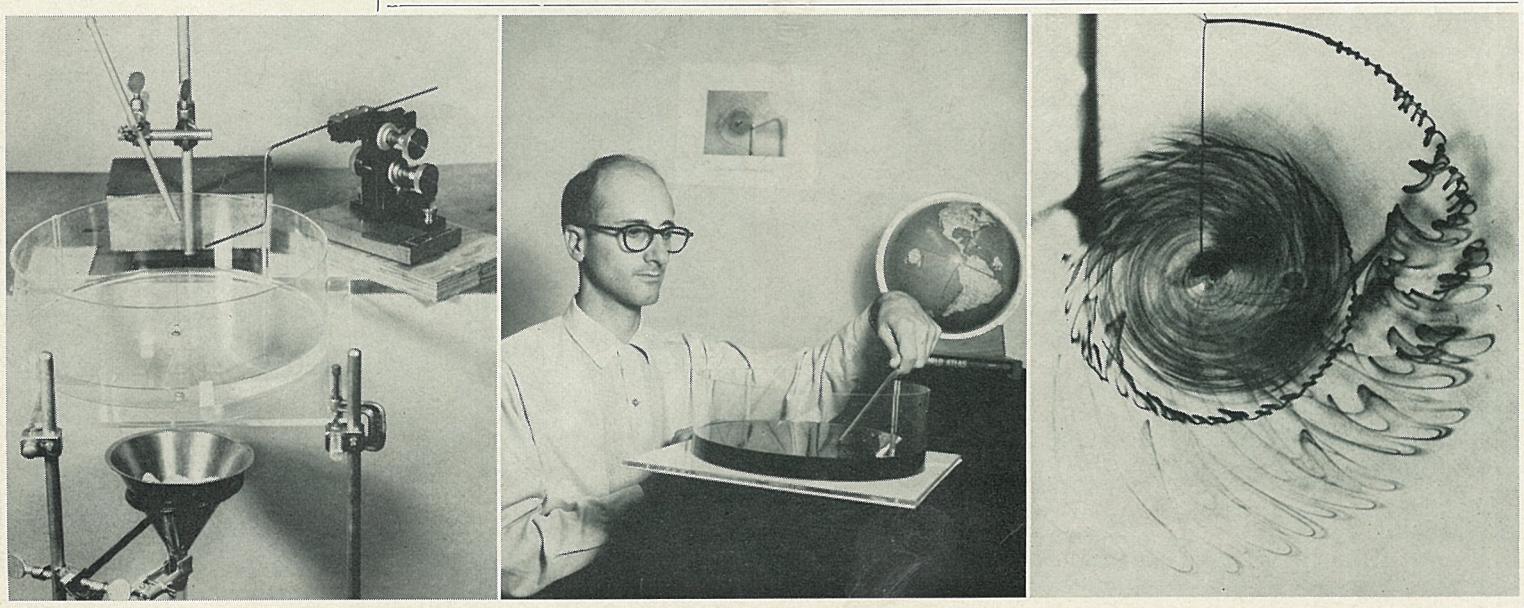
The crewman instantly pulls a handle which closes the capsule door and sets off the capsule's pressurization system.

(In case of decompression, a B-58 crewman can close and pressurize his capsule and fly to lower altitude, or if the situation warrants, eject from the plane.)

Topics included in this final phase of training include effects of high altitude on the human body, causes and treatment of oxygen deficiency, care of oxygen equipment, explosive decompression, pressure-breathing techniques and flydown following decompression.

Members of GD/FW Air Force Plant Representative's office taking the course are Lt. Col. Joe B. Thomson Jr., Majors Curtis R. Keogh, Robert S. Ballard, and Andrew Z. Doka, Capt. Russell E. Clark Jr. and M/Sgt. Frank E. Pulley.

GD/Fort Worth flight department personnel include: R. L. Johnson, Val E. Prahl, E. E. Guthrie, F. J. Voorhies, W. E. Denton, Vincent J. Kane, Fred A. Hewes, Michael F. Keller, James C. Lucas, Norman C. Stranberg, Grover C. Tate, Jack L. Blackmon, Charles B. Cox, Dale C. Ford, Paul Brewer, Max L. Runyan, and A. F. Riley.



ROUND AND ROUND—Merwin Sibulkin, GD/Astro staff scientist, demonstrates part of equipment used during study of why escaping water whirls in a particular direction. Dye was added to water in some tests to reveal behavior, as shown in photo at right.

Ex-Shell Oil Head Dynamics Director

H. S. M. Burns has been elected a director of General Dynamics Corporation, Roger Lewis, president, announced last week.

Burns retired as president and chief executive officer of Shell Oil Co. and chairman of its executive committee Dec. 31, 1960. He had been with Shell since 1926, starting as a geophysicist in California.

ABRAMS TO SPEAK TO ROCKET SOCIETY

M. C. Abrams of General Dynamics/Pomona's Dept. 6 will present a paper entitled "Effect of afterburning extinguishment on ionization in rocket motor exhausts" at the American Rocket Society meeting in Palm Springs this Friday (Oct. 12).

GD

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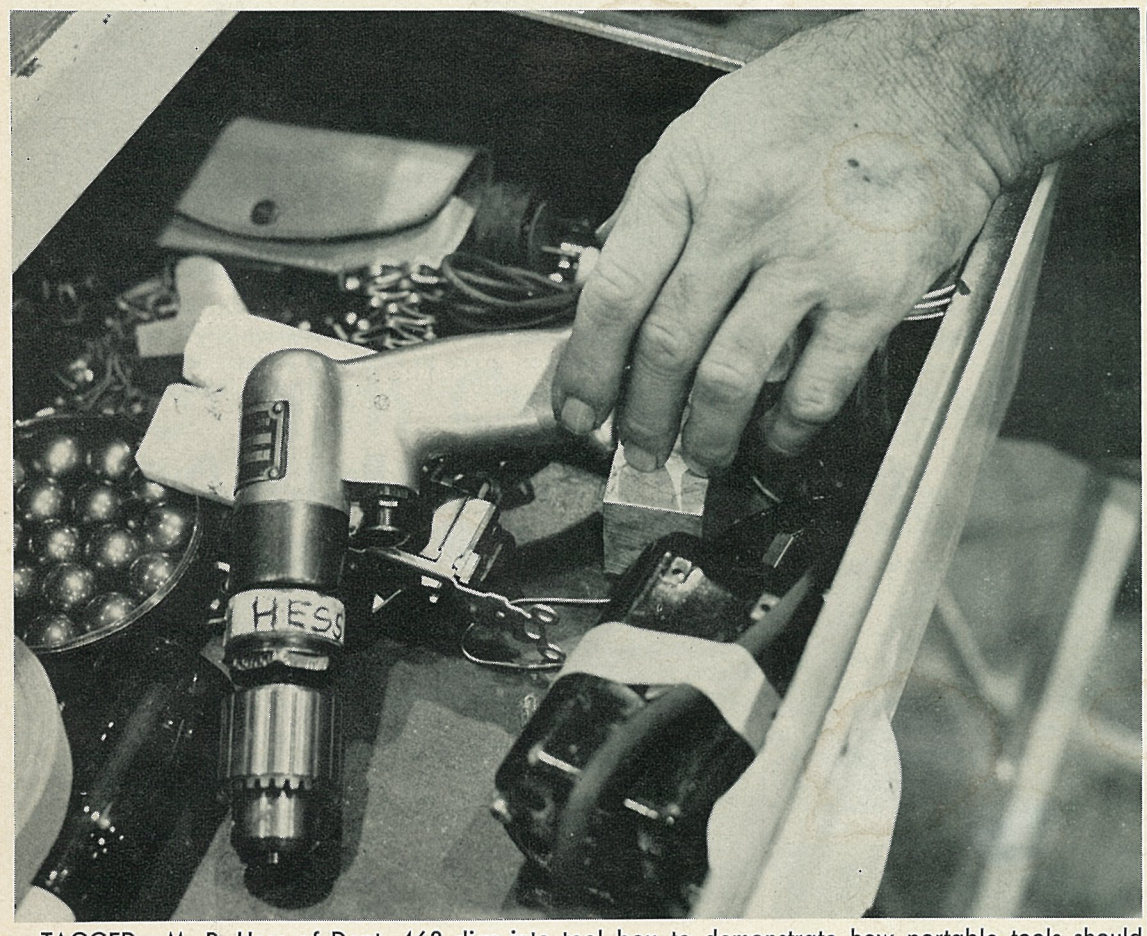


TAGGED—M. P. Hess of Dept. 462 digs into tool box to demonstrate how portable tools should be tagged if employee wants same tool back following inventory Saturday.

Atlas Scores New Triumph With Ranger

CAPE CANAVERAL — Atlas 215-D racked up another triumph in a growing series of highly successful space launches here Oct. 18 in sending an Agena B stage and the Ranger 5 spacecraft off toward the moon.

At about the same time, National Aeronautics and Space Administration, the sponsoring agency, announced that five additional Ranger launches, extending into 1964, are now planned. Which means that 14 Ranger probes are now programmed to provide further support to the manned lunar exploration program.

The Oct. 18 launch was the fifth Ranger spacecraft launched.

Goal of the entire Ranger project is to provide information on the moon's origin, constitution and surface characteristics as well as data and operating experience that will hasten progress toward manned lunar flights.

General Dynamics/Astronautics crews manned Complex 12 here and performed the countdown for Ranger 5. Orion Reed, site manager, was launch conductor.

Ranger 5, a 755-pound gold and chrome-plated spacecraft, was

(Continued on Page 2)

GD/Astro Commended On Schirra Launch

Special commendation for the successful Mercury—Atlas operations which sent Astronaut Walter Schirra Jr. on six orbits of the earth has been received at General Dynamics/Astronautics.

It came from Maj. Gen. Ben I. Funk, Air Force Space Systems Division commander in the Los Angeles area, who said:

"Congratulations to you and all your Mercury—Atlas personnel on the successful launch of MA-8/Atlas 113D. The excellent condition of the launch vehicle and the smoothness of the launch operation are direct reflections of the outstanding manner in which the launch vehicle team members have performed their duties."

Turn in Your Portable Tools And Help Save $9 on Each One

Each General Dynamics/Astronautics employee who carefully follows instructions this week in regard to portable tools can save GD/Astro $9.

The saving will be reflected when Astro conducts its semi-annual portable tool inventory to meet Air Force requirements.

The cost per tool inventoried is about $1 when instructions are followed and all tools are located. BUT it costs almost $10 per tool for those that must be tracked down through records and departments to individuals.

Thus, those who follow instructions help save $9 per tool!

Portable power tools are usually hand-held. They include common items such as drill motors and rivet guns and range to the uncommon such as belt sanders, air guns, etc. Most portable tools are stored in cribs and checked out as needed. However, employees constantly using the same tool may, upon proper request, have it assigned to them on a more or less permanent basis.

Detailed instructions covering the inventory have been forwarded to every department locally. (Off-site locations also conduct inventories, but set them up individually.)

Here, in brief, is how the inventory works:

At the conclusion of first and second shifts Friday (Oct. 26) all portable tools are to be returned to tool cribs. Third shift employees check their tools in Friday morning. All are returned to the crib from which they were drawn. Inventory will be made on the spot, with tools again ready for general use Monday.

Employees with preference for a particular tool are being given special consideration. They may tag the tool with their name, clock and department number and ask for its return after the inventory. However, all tools being reissued require an "AVO" from supervision, if they are to be used on a long-term basis.

Well over 2,500 portable power tools must be checked.

Sycamore Canyon and product support center conduct their own inventory, but plan it at the same time and in the same manner covering the remainder of San Diego area operations. The latter is the joint responsibility of property accounting and tool service functions.

"We urge every employee to check his work area closely to locate and turn in every portable tool," said M. O. Ramsey, tooling general supervisor. "If we can complete this inventory in a single day without having to track down 'lost' equipment, it will reflect highly on our competitive standing as a division and a corporation.

"This is a relatively simple, but highly important, operation in which individual employees play the key role," Ramsey added.

Traffic Supervisor Chairs Symposium

J. W. Higgins, GD/Astro traffic supervisor, served as general chairman of the Second Annual Transportation Symposium, sponsored in mid-October by San Diego Chamber of Commerce.

As chairman of the Chamber's transportation steering committee, Higgins defined and introduced panel discussion objectives for both sessions of the one-day symposium.

Con-Trib Gives $675,000 Plus During Year

September charity grants, $44,080; total 1961-62 charity grants, $596,896.68; total 1961-62 Emergency Aid Fund grants, $80,478.47.

These are entries, cold cash figures, in ledgers of the General Dynamics/Astronautics Employees' Con-Trib-Club for the fiscal year which ended Sept. 30.

They show this was a record year for disbursements.

But they do not tell of the many small community and large city charity and welfare agencies in 10 states able to continue their services through a timely grant. They reflect, but do not show, how many hospitals, clinics and centers of all types now have vitally needed items of equipment for treating children and adults that would otherwise be only a dream. Nor do they show in how many communities Con-Trib-Club donations constitute the largest single gift ever received for a united fund effort.

Emergency Aid Fund grants are still another unheralded story, for they respect the privacy of the receiver. However, they have helped hundreds of employees, across the nation, meet situations in emergencies beyond their control.

Throughout the year Con-Trib-Club funds have been granted in California, Florida, Oklahoma, Texas, Washington, Nebraska, New York, Kansas, New Mexico and Wyoming.

Largest grants went to community fund raising drives which in turn, helped many other agencies. Areas in which the most Astronautics employees worked received larger amounts, for money collected at off-site locations was returned to the area.

Total charity grants for the year show $154,647.30 was disbursed in communities outside San Diego. They range from $724 given by a small Astro force at Sheppard AFB, Tex., to $26,300 disbursed in the Cape Canaveral area.

Emergency Aid Funds sent to off-site locations totaled $7,497.97.

Unusual in many respects, Astro's Con-Trib-Club has functioned smoothly throughout the year. It reflects a plan in which employees give or not as they choose and a plan in which all factors have a voice in disbursement.

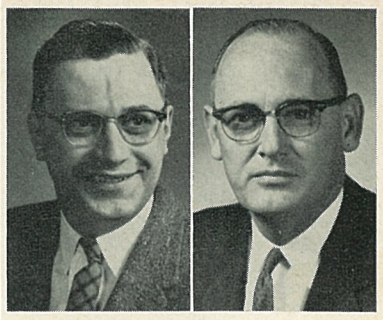
At off-site locations Con-Trib-Club Advisory Committees, made up of representatives of unions, employees and management, studied the local situation and suggested grants, based on income. In San Diego the Employees' Board of Directors, also with similar representatives, acted on the suggestions, resulting in disbursements.

Emergency Aid is strictly an internal program. A percentage of Con-Trib-Club income is retained and utilized in helping employees meet emergencies beyond their control. Emergency Aid is an outright grant, not a loan, and is available to Astro employees anywhere.

Lee, Milling Named Asst. Controllers

Creation of two new executive controller posts within General Dynamics/Astronautics and the selection of two General Dynamics veterans to fill them has been announced by President J. R. Dempsey.

Named Astronautics assistant controllers were Howard E. Lee,



H. E. Lee J. D. Milling

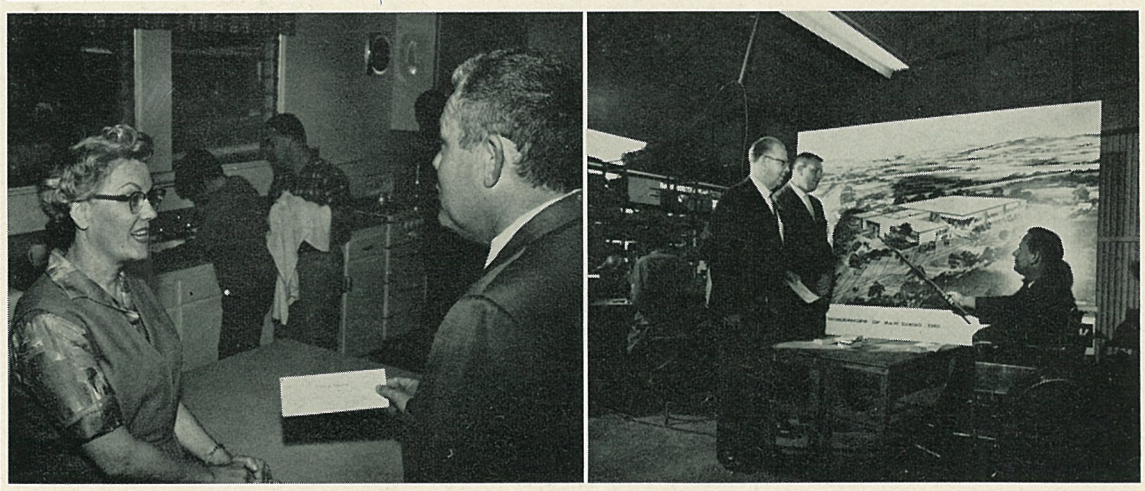
formerly manager of budgets at GD/Astro, and John D. Milling, formerly manager of accounting at GD/Convair.

Both report to Earl G. Hill, Astro controller.

Dempsey indicated the new assignments will make possible positive control-type activities (Lee) and detailed emphasis on accounting activities (Milling).

Reporting to Lee will be: L. H. Boggess, manager of estimating; Eugene Fox, manager of budgets; and a financial analysis function head to be named. In addition, Lee will be responsible for providing functional direction to all project financial control activities.

(Continued on Page 2)



HELPING HANDS—At left Don Glasser, Employees' Con-Trib-Club board member, visits San Diego County Society for Retarded Children to present $2,000 gift to Mrs. Cheri Sevick. At right J. W. Sharpe, Sheltered Workshops executive director, shows sketch of new facility to A. E. Hill and John Speed of GD/Astro. Speed is Con-Trib director and Hill is on Workshops board.

Log Book Entries

Promotions

MAIN PLANT

Transfers to and within supervision effective Oct. 8.

Dept. 015-0, Electronic Project Management: To contract administrator, R. E. Little.

Dept. 140-2, Quality Control Office: To reliability control administration asst. supervisor, M. M. Saunders Jr., S. Teggart.

Dept. 143-5, Inspection: To inspection asst. supervisor, R. L. Hallahan. To process control asst. supervisor, T. J. Marcella.

Dept. 147-0, Reliability Control (SLV): To inspection asst. supervisor, F. L. Cornish.

Dept. 148-1, Reliability Control (AWS): To inspection supervisor, G. W. Cooper.

Dept. 210-0, Operations Estimating and Forecasting: To factory methods asst. supervisor, T. Rockar.

Dept. 222-2, Production Control: To production control asst. supervisor, F. E. White Jr.

Dept. 322, Support Publications: To support publications asst. supervisor, R. M. Emerson, E. E. Van Meter. To support publications supervisor, L. E. Hart, R. V. Lacey, R. M. Trease.

Dept. 363-0, AWS Financial Control: To manager of financial control-project, B. J. Neal.

Dept. 380, AWS Systems Engineering: To asst. reliability group engineer, G. Stamper. To design group engineer, R. J. Parsons.

Dept. 643-0, SLV Contracts: To contract administrator, N. A. Stephens.

Dept. 662-9, SLV Mechanical Design: To design group engineer, L. White.

PLATTSBURGH AFB

Dept. 620-6, GD/Astronautics Operations: To cost control supervisor, R. D. Smith.

Service Emblems

MAIN PLANT

Service emblems due during the period Oct. 16 through Oct. 31.

Twenty-five-year: Dept. 140-0, P. M. Benner; Dept. 324-0, G. W. O'Hare.

Twenty-year: Dept. 151-3, J. H. Overdeer; Dept. 641-1, H. C. McCullough; Dept. 759-0, A. C. Burkhart.

Fifteen-year: Dept. 151-3, H. O. Brown, C. E. Fabian; Dept. 155-0, R. C. Maving Jr.; Dept. 362-0, A. J. Braidic; Dept. 395-1, G. D. Simmons; Dept. 403-1, D. C. Basore; Dept. 602-0, J. J. Miller; Dept. 733-0, J. C. Morales.

Ten-year: Dept. 141-4, L. F. Vobeyda; Dept. 223-2, O. G. Daviau; Dept. 300-0, Edith E. Graham; Dept. 337, Laureno Rodrigues Jr., G. A. Wright; Dept. 343, R. A. Lovci, W. A. Wilkinson; Dept. 394-1, F. G. Martinez; Dept. 402-2, H. E. Ruby; Dept. 451-0, T. M. Smith, N. A. Striffler; Dept. 454-0, R. L. Mansfield; Dept. 462-0, C. E. Coben; Dept. 524-6, A. R. DuFour; Dept. 567-3, F. T. DeGuide; Dept. 663-1, L. W. Richards Jr.; Dept. 756-0, L. E. Anderson, H. M. Hankins; Dept. 758-0, J. T. Anders, J. P. Gage; Dept. 781-0, Marie M. Rivard; Dept. 782-0, M. W. Hill Jr.

ALTUS AFB

Fifteen-year: Dept. 617-7, C. R. McWilliams.

Ten-year: Dept. 617-0, F. E. Hinton Jr.

DYESS AFB

Fifteen-year: Dept. 618-8, I. L. Sayler.

LINCOLN AFB

Ten-year: Dept. 616-7, J. W. Howe.

PLATTSBURGH AFB

Ten-year: Dept. 620-8, R. A. Lord.

VANDENBERG AFB

Ten-year: Dept. 576, E. J. Walty, R. F. Workman Jr.

WALKER AFB

Ten-year: Dept. 619-3, J. R. Morales Jr.

Births

MAIN PLANT

FRIEDEL—Son, Charles Scott, 10 lbs., 2 oz., born Sept. 4 to Mr. and Mrs. G. C. Friedel, Dept. 684-2.

AFMTC

CALLON—Son, Nelson Edward, 10 lbs., born Oct. 6 to Mr. and Mrs. G. L. Callon, Dept. 571-6.

Deaths

MAIN PLANT

HARRISON—James R., Dept. 322-4. Died Sept. 23. Survived by wife, Elizabeth, and daughter.

SHANNON—Paul S., Dept. 565-2. Died Oct. 8. Survived by wife, Gloria, and five daughters.

PLATTSBURGH AFB

LONGO—Nicholas D., Dept. 620-3. Died Oct. 2. Survived by wife, Cornelie.

Personals

To all the wonderful friends who shared our grief at the loss of our son, our deepest and most heartfelt thanks. Your sincere expressions of sympathy through cards, flowers, collections, and blood donations, have reaffirmed our faith in the goodness and unselfishness of human nature.

Joyce (Dept. 014) and
Art (Dept. 144) France

* * *

My sincere appreciation and thanks to our many friends for the expressions of sympathy, the gifts and flowers, sent to me and my family on the death of my husband, Paul. Your kindness and thoughtfulness will long be remembered.

Gloria M. Shannon, Dept. 130-1

General Dynamics NEWS

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* * *

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Dozen Atlas Launch Complexes Delivered to SAC at Altus AFB

ALTUS AFB — General Dynamics/Astronautics base activation forces here made it three down and three to go last week in delivering 12 Atlas "F" launch complexes to Strategic Air Command.

Ceremonies marking the delivery were held Oct. 15.

Which means that in 32 calendar days Astro completed work on three series "F" bases, including Schilling AFB, Kan., Lincoln AFB, Neb., and this Oklahoma facility. Each is equipped with 12 Atlas launch complexes featuring silo or underground storage facilities, plus necessary service and support elements.

Activation work continues on similar facilities at Dyess AFB, Tex., Walker AFB, N. M. and Plattsburgh AFB, N. Y. All are slated for completion this year.

Col. Ernest L. Ramme, SATAF commander here, represented Maj. Gen. W. Austin Davis, Ballistic Systems Division commander, in turn-over ceremonies. Representing SAC, the unit manning Atlas facilities in operational status, was Col. James Smith, commander, 11th Strategic Aerospace Wing.

The 577th Strategic Missile Squadron (SAC) under command of Col. Leo Brooks will man the facilities.

Astronautics was represented at the ceremonies by W. L. Van Horn, vice president and program director—Atlas weapon system; P. M. Prophett, director of base activation; E. J. Huntsman, manager of Series "F" base activation; and J. N. McPheeters, Astro operations manager here.

McPheeters received the BSD "Commander's Award" for his efforts on behalf of operations here.

Lee, Milling Named Asst. Controllers

(Continued from Page 1)

Reporting to Milling will be: L. F. Moeller, manager of general accounting; J. R. Tucker, manager of industrial accounting; C. E. Welsh, manager of revenue management; F. M. Wynkoop, manager of subcontract audit; and L. V. Nigro as head of the tax organization.

(Subcontract audit and tax functions, while organizationally a part of Astronautics Division, perform services, as required, for General Dynamics/Convair, Fort Worth and Pomona.)

Continuing to report directly to Hill will be the off-site coordination function to provide surveillance over off-site financial activities, and an audit function to carry on selected financial audit activities.

Lee is a native of Omaha and a graduate of the State University of Iowa.

He also attended Omaha University. Following three years with Wilson and Co. in Omaha he served five years in the U.S. Army, attaining the rank of major. From 1948 until 1951 he owned and operated the Texas Business College in Weatherford, Tex. He joined GD/Fort Worth in 1951 as a budget analyst and became budget supervisor the following year. In 1959 Lee transferred to Astro to take over all budget functions.

Milling is from Texas and is a graduate of Texas Tech. He joined the former Convair operations as an accountant in 1941 and returned in 1946 following Army service. In 1951 he became a general accounting supervisor and in 1953 manager of general accounting. He later became acting Convair/SD assistant controller, prior to his most recent assignment.

BURNS APPOINTED DYNAMICS DIRECTOR

Edward H. Heinemann and Howard L. Richardson have been elected vice presidents of General Dynamics Corporation, Roger Lewis, president, announced.

H. S. M. Burns

Their appointments followed announcement of the election of H. S. M. Burns as a director of General Dynamics. Burns retired in December, 1960, as president, chief executive officer and chairman of the executive committee

H. L. Richardson, left, vice president for corporate planning, and E. H. Heinemann, vice president for engineering.

Veteran ARA Leader Dies in Accident

Rosary was recited for Paul S. Shannon, veteran ARA leader at GD/Astro, Oct. 11 at Pacific Beach Mortuary. Burial was at sea.

Shannon died Oct. 8 of injuries received earlier when he swerved his motorcycle to avoid striking a group of youngsters on bicycles.

Shannon organized and served as commissioner of the ARA-sponsored Astro Motors, a motorcycle activity. He is survived by his wife, Gloria, and five daughters, Marguerite Muschbacher, Patricia, Virginia, Susan and Jean Shannon.

Blueprint Reading Class Scheduled

A San Diego City College course in advanced configuration blueprint reading will be offered to GD/Astro employees starting Oct. 29.

Classes will meet from 4 to 6 p.m., Mondays and Wednesdays, in Room 2, Bldg. 17, at the main plant. Registration will be taken at the first class meeting and there is no tuition fee. R. H. Gruner will instruct.

Additional information is available from Laura in educational services, ext. 1933.

Atlas Scores New Launch Triumph

(Continued from Page 1)

bound on a journey of some 231,000 miles over a 70-hour period.

Two primary purposes were set for the Ranger 5 mission. One was to take and transmit back close-up television pictures of the moon's surface. The second was to place an instrument package on the lunar surface to transmit data on moonquakes, which may help in determining how the moon was formed and its structure developed.

CUTTING COSTS—Staggered lighting in Bldg. 3, Plant 2, shows one means GD/Astro is using to reduce electricity costs. Lights are removed in little used areas to eliminate excess. Savings at Plant 2 in electricity have topped $2,018 monthly. Employees are aiding by turning off lights not in use.

Plant 2 Doing Its Part to Cut GD/Astro's Utilities Expense

In just two months of concentrated effort, General Dynamics/Astronautics employees at Plant 2 have chopped $16,337.65 off the cost of utilities during a similar period in 1961.

Plant 2 is currently adding its efforts to a division-wide campaign to reduce utility bills, which have exceeded a million dollars annually, by at least $200,000 per year.

Plant 2 was jointly occupied by Astronautics and Convair operations throughout 1961 with General Dynamics paying $541,752.36 for gas, water and electricity to serve them. Of this, $387,152.30 was for electricity.

The latter charge has been a focal point in efforts to date. By removing 168,390 watts of light, enough to illuminate 160 average homes, savings of $2,018.64 per month have been realized. Lights removed have been in areas which did not require such high levels of illumination.

Almost the same amount (an estimated $1,500) will be realized through the efforts of individuals who are currently waging an effective "turn it off" drive. In this they are encouraging other employees to douse lights in unoccupied areas, to be sure lights are turned off at the end of work shifts and with special attention to turning off all lights at the conclusion of the last shift before weekends and holidays.

Throughout Astronautics the current attention to reducing utility costs is also stimulating interest in both Employee Suggestion and Cost Improvement programs.

Employees with ideas or suggestions on utility savings are urged to use these plans or to contact plant engineering. E. G. Kiener or J. T. Dragonetti, both ext. 3486 at the main plant, will discuss proposals with all interested employees.

Resources Planning, Control Added to Plant Engineering

Integration of resources planning and control at GD/Astronautics into plant engineering department has been announced by President J. R. Dempsey.

Appointed assistant to W. J. Stanley, manager of plant engineering, is J. K. Davant. His assignment will include assistance to Stanley in such matters as division coordination of facilities, analysis of manpower and facility relationship and planning of plant capabilities related to future business, Dempsey said.

C. L. Hartshorn, chief plant engineer, will be responsible for former resources planning and control functions. Reporting to him will be:

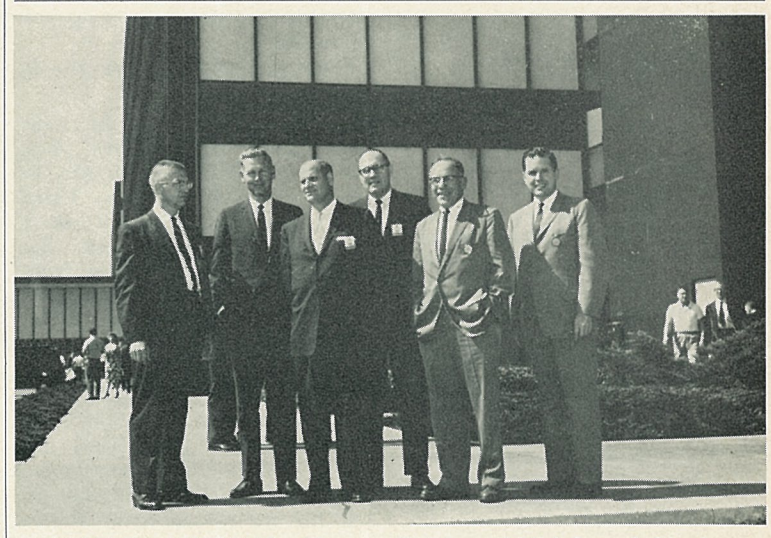
G. M. Coole, general supervisor, who will head those functions planning space allocations, facilities, bid studies, etc.;

R. D. Leonard, general supervisor, to direct functions concerning layouts, arrangements and general plant engineering type criteria;

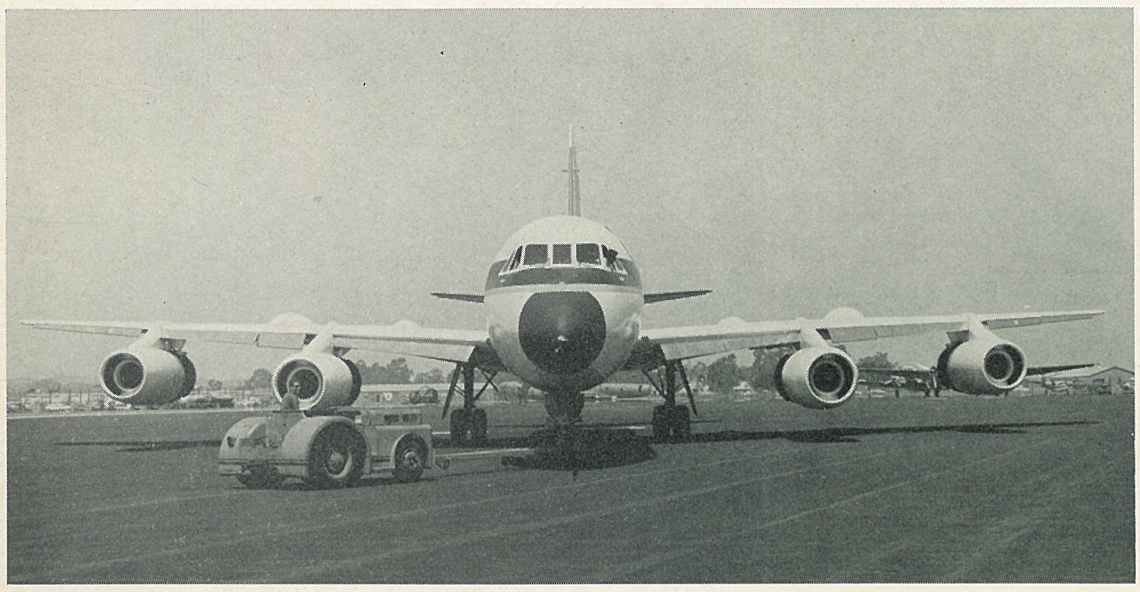
R. H. Wallace, general supervisor, responsible for functions concerning facility records, accountability control, etc.; and

S. E. Chavez, general supervisor, who will head off-site support.

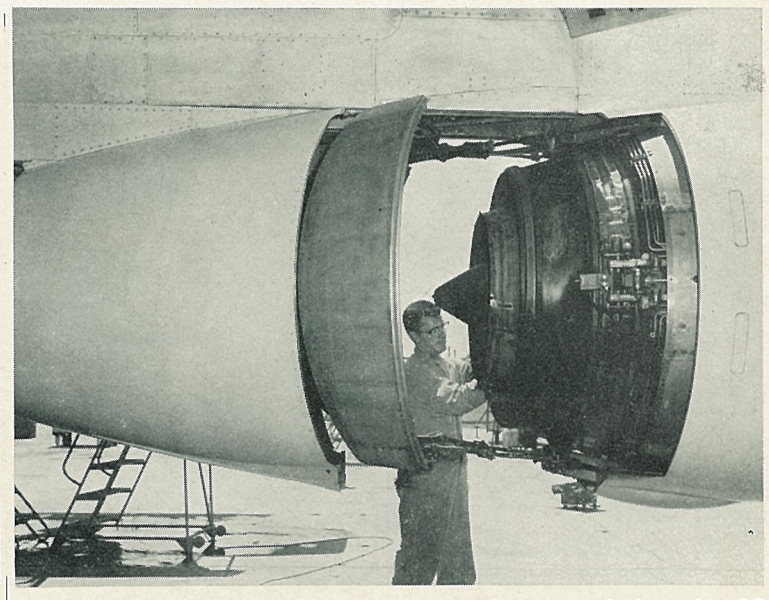
Dempsey indicated the realignment will place complete plant facilities and plant engineering responsibilities in compact groupings to obtain maximum coordination and efficiency.



BETWEEN SESSIONS—Thomas F. Dixon (third from left), deputy associate administrator of NASA, was visitor to GD/Astro recently, along with L. J. Johnson of NASA's launch vehicle and propulsion program office (Dixon's left) and R. W. Kamm, director of NASA's Western Operations Office, left. They are shown with President J. R. Dempsey and Vice Presidents Mortimer Rosenbaum (research, development and engineering) and Grant L. Hansen (Centaur).



CERTIFIED—Above is front-view shot of GD/Convair's improved 990A long-range jetliner recently certified by FAA. Plainly visible are full-span Krueger flaps which replace former combination of Krueger flaps from fuselage to inboard pylon and leading wing slats outboard across rest of wing.



NEW LOOK—Latest 990 version carries extended pods, 25 inches longer than original design, with exhaust fairing opening on tracks for easy access. In above photo J. R. Heriot, Dept. 171 field service mechanic at GD/Convair, adjusts reverser lock with fairing "translated" aft into reverse, or open, position.

625 mph Cruise Speed Achieved by 990A Jet

General Dynamics/Convair's 990A—long-range version of the newest jetliner—received an airworthiness type certificate from Federal Aviation Agency on Oct. 10, several days sooner than expected.

The FAA revenue ticket will permit Swissair to put the 990A into scheduled passenger-carrying service. The airline, which refers to the Convair jetliner as the Coronado, has already started to incorporate the improvements on the first of seven 990 Coronados presently flying Swissair and Scandinavian Airlines System routes.

General Dynamics/Convair has shipped improvement kits, including parts and tools, to Zurich, Switzerland. A team of company service, engineering, inspection, tooling and factory experts is helping Swissair incorporate the improvements on the first jetliner at the Kloten Airport.

Swissair has allotted 60 days to update the first airplane. The airline will cycle its six other Coronados into the improvement program to coincide with the regular service and overhaul schedule.

GD/Convair field service representatives stationed with Swissair at Zurich for 990 operations and updating support are F. D. Laffoon, E. R. Buckman, M. R. Addis, Mel Clause and John Crenshaw.

Meanwhile, GD/Convair is preparing to start another FAA flight test program to obtain certification of a second, still-faster version of the Convair 990A which will be operated by American Airlines.

J. H. Famme, president of GD/Convair, said the test version of the 990A has already attained a cruising speed of more than 625 miles an hour, faster than any other commercial transport now in service.

Two versions of the 990A are needed because of differing domestic and foreign airline requirements. The overseas 990A has been optimized for range and payload, while the domestic 990A has been optimized for speed.

An FAA flight test program for the production version of the domestic 990A is scheduled to start in November. After FAA certification is obtained, the 15 American Airlines 990s now in service will be cycled back to the San Diego plant for speed improvement changes. Five additional speed-improved 990As are on order by American Airlines for delivery next year.

Three basic changes are common to both versions of the 990A:

1. The engine pods are extended rearward 25 inches. The new-shaped fairing reduces the external drag of the pod, and at the same time, causes no detrimental effects on engine performance during cruise.

2. The wing leading edge is modified so that it has less camber or droop. This improves its shape for high-speed flight. Also, a different high-lift device arrangement is incorporated on the wing leading edge. Full-span Krueger flaps replace the former combination of Krueger flaps and leading edge slats.

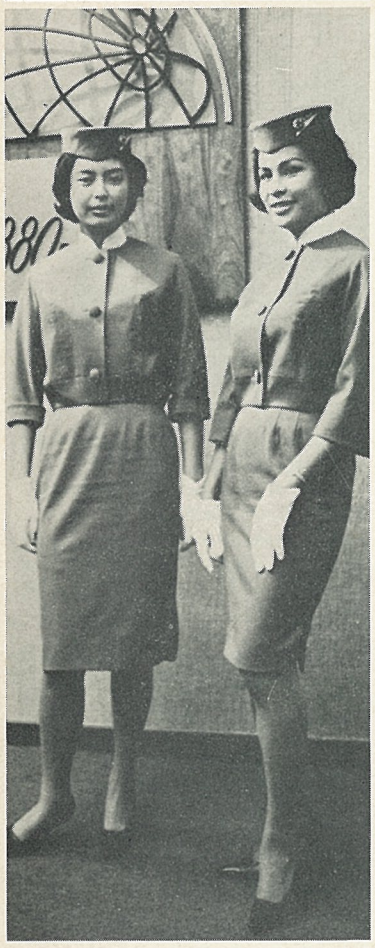
3. A new fillet or fairing is incorporated at the juncture where the wing mates with the fuselage. This fillet helps prevent airflow separation, thereby reducing drag in high-speed flight.

In addition, the domestic 990A has contour fairings added on the engine pylons and terminal fairings attached to the inboard side of each engine exit nozzle. Both the pylon and terminal fairings are applications of area-rule ("Coke bottle") design principles and help reduce drag at very high speeds.

The above changes are the result of extensive wind tunnel and flight tests undertaken to improve performance of the 990 jetliner. GD/Convair engineering test pilots have logged more than 325 hours flying versions of the Convair 990A.

The overseas version of the 990A, which was just certified, completed a 25-hour functional and reliability flight test program for the FAA late last month to prove the dependability of the new thrust reversers and flap system. The certified plane also demonstrated improved takeoff performance and better climbout characteristics, giving it greater flexibility for airport operations.

The 990 features some of the most advanced systems in the industry. It is the first jetliner to be equipped with a new proportional anti-skid braking system that has better braking capabilities on slick runways. It is also the first jetliner designed specifically to take advantage of the turbofan pure jet engine with its big advantage in thrust and fuel economy.



CHIC HOSTESSES—Rose Tam and Pamela Mattos model stylish rose-red uniforms now replacing conventional dark blue for Cathay Pacific Airways hostesses. Cathay flies Convair 880 over Far East routes.

Symposium to Hear Astro Man's Paper

Romuald Anthony, GD/Astronautics Dept. 592-2, will give a report on horizon measurements from high altitude at the Infrared Information Symposium, Philadelphia, Pa., Oct. 29-31.

Anthony is research group engineer in the infrared-optics technical laboratory, located in Bldg. 51, Plant 1, San Diego.

Radar Mapping System Tried Out in Hustler

A new airborne mapping radar capable of detecting details of the terrain thousands of feet below has been developed by General Dynamics/Electronics at San Diego.

The new system will permit rapid, accurate mapping of vast sections of the nation and the arctic regions which have never been adequately charted.

Produced under a U. S. Air Force development contract, the radar system has been test flown on a B-58 and is suitable for operation on transport aircraft, including the C-141. The system is a refinement of other General Dynamics mapping radars. In its development, emphasis has been placed on designing the radar to record faithfully on film extremely small terrain details from high altitudes.

In the General Dynamics system, a camera and film magazine are fitted over the radar screen. Each time the radar scans the terrain below, the synchronized camera takes a photograph of the map displayed on the screen. The film is developed after the aircraft lands.

General Dynamics engineers say the system is superior to previous mapping radars because of the specially designed picture tube and the increased accuracy of the radar being used. This increases the ability of the radar to distinguish among small objects close together on the ground.

Besides taking the photograph, the data recorder makes a film record of the time and the aircraft's speed, location, altitude and direction.

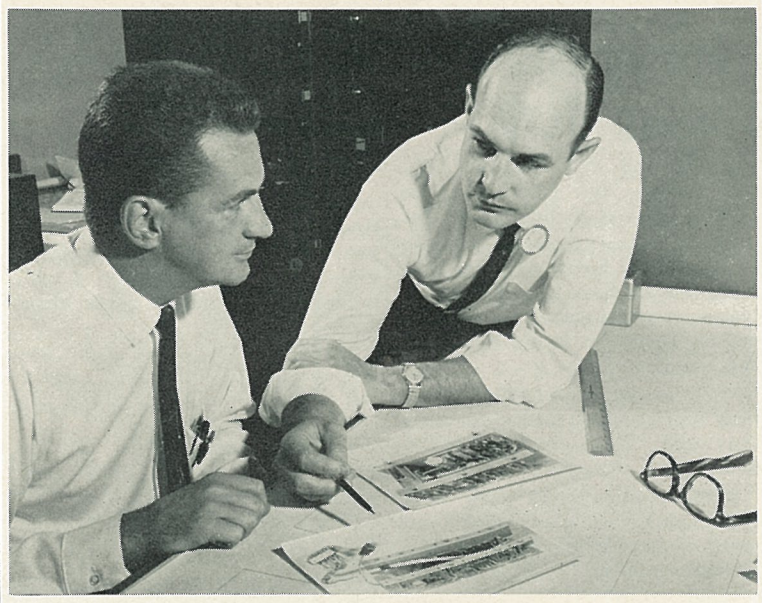
The system employs a cathode ray tube which displays the picture by using a series of extremely small dots. The ultra-small dot size makes the system's resolution of details about ten times better than conventional radars.

Contract for the airborne radar was received early in 1960 by the former electronics group of Convair division and carried on by GD/Electronics, under direction of D. A. Graybill, project engineer.

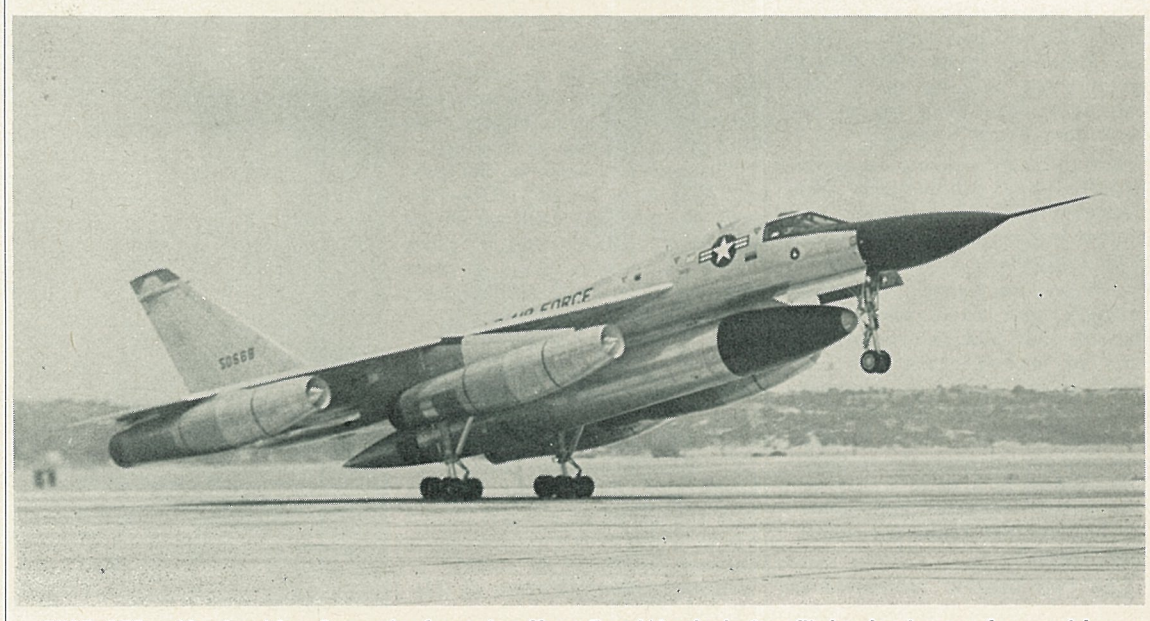
The radar system was delivered in May of 1961 to Fort Worth. Ron Williams, GD/E design engineer, was based there throughout the 14-month checkout program, concluded in August. Max Tucker was GD/E system engineer.

Because it uses radar rather than photography, the system can produce aerial maps under all weather conditions. Map displays are provided on two separate radar indicators. One is presented in a conventional manner to the aircraft's operator for navigational use. Another presentation, on the precision indicator, is recorded continuously by camera.

The radar has undergone environmental testing and operates successfully in a wide temperature range. In its flight testing, the system was subjected to the shock and vibration received on jet aircraft.



CONFERENCE—D. A. Graybill, GD/E project engineer, and R. B. Williams, design engineer, check over photos of components incorporated in GD/E-developed airborne radar reconnaissance system.



TEST BED—Hustler No. 9 ready for takeoff at Fort Worth during flight checkouts of new airborne radar system developed by GD/Electronics at San Diego for Air Force. Plane is equipped with new-type radome containing components of system.

GLASS FUN—In top photo GD/Convair wife Helen Keough in her glassware workshop. Below, Betty Young measures fiber glass which will form top of glass-studded lampshade.

Bottle Busters

GD/Convair Wives Are Artists When it Comes to Glass Work

Two GD/Convair wives have solved the common household problem of what to do with empty bottles—they transform them into objets d'art!

The homes of Helen Keough, wife of N. R. Keough, Dept. 31 superintendent, and Betty Young, wife of Wesley C. Young of tool planning and design, are graced with colorful ash trays, flower containers, dishes, bowls of unusual and strange shapes, wall plaques, all made from ordinary glass bottles, whole or crushed.

And, they've both gone far beyond the mere melting of a bottle in a kiln in their imaginative use of glass. Mrs. Keough has constructed a realistic underwater scene on her bathroom window, using shells, starfish, tiny glass fish, sea horses perched in coral fans. One of her first projects was a holiday pane with bits of green glass shaping the Christmas tree that goes up in the front door every Yuletide.

Mrs. Young forms massive, medieval-type candlesticks from discarded glass insulators. She is now in the midst of an ambitious lampshade construction.

"We're not above scouring gutters and back alleys for bottles that look interesting or bits of broken glass just the right color," said Mrs. Keough. "And our grocery shopping is governed by the kind of bottles we find on the shelves—in fact, our family is a little weary of the salad dressing that comes in bottles just right for small ash trays."

The two became interested in glass craft through an adult education class six years ago when the hobby was in its infancy. Since then they have expanded their talents with original ideas and designs and private lessons from a Spring Valley instructor.

Their bottle forming consists of placing a bottle in a shallow mold and heating in a kiln at extreme temperatures until the bottle "sags," or melts down into the mold.

"We never know what shape they will be when they come out," they said. "Each one is an 'original.'"

Wind chimes with pure tones are made from glass rings, cut from a round bottle by what Mrs. Keough calls her "bottle buster," a charged electrical wire wrapped around the bottle. The rings are heated to give them a rounded shape and hung from shapely jugs or pieces of driftwood. They tinkle musically in a breeze.

Among the long list of decoration pieces they've experimented with are wall plaques, jewel-decorated goblets, plates, jewelry from fired glass chunks or marbles.

"There is no limit to the hobby," said Mrs. Young. "One idea leads to another, and we never look at anything made of glass—from a headlight to a plate glass window—without thinking 'what can we do with that!'"

Fire Dept. Captain Dies on Vacation

T. W. Attebury, GD/Fort Worth fire department captain since 1951, died of a heart attack Oct. 15 while vacationing at Lake Whitney, Texas.

Attebury went to work at GD/FW Feb. 23, 1942, as a hose man in the fire department. He was the first fireman hired by Fire Chief C. H. Jones.

Calif. to Return To Standard Time

Clocks in California will be turned back an hour this coming Sunday (Oct. 28) as the state returns to standard time.

All General Dynamics people based in the state will regain the hour they "lost" this spring.

Daylight saving time was extended a month for the first time this year following adoption of the plan at the last state election.

Airborne Antenna Installed in C-130 For Missile Checks

General Dynamics/Convair is winding up its task for the Air Force under a contract to develop and install a directional airborne antenna receiving system in a C-130A transport.

Following flight tests at the San Diego plant last week the C-130A was due to return to U. S. Air Force Missile Test Center, Patrick AFB, Fla., for continuation of operational checks under simulated tactical conditions, said Frank Machado Jr., design specialist responsible for the program.

The Air Force craft has been in Plant 1 experimental yard during the last month for installation of the system which is designed for use in connection with telemetry at Atlantic Missile Range to track missile nose cones re-entering the atmosphere.

BANNER EVENT—A blue and gold banner was presented by Roy A. Williams, left, president of GD/Pomona Management Club, to George Watkins, newly-installed president of Electronics Management Club in Rochester.

Management Club Organized At GD/Electronics-Rochester

A new Management Club, organized at GD/Electronics-Rochester, received its charter from the National Management Association at a special charter night program last month.

Roy A. Williams, president of the GD/Pomona Management Club, presented a banner to George Watkins, newly-installed club president at Rochester. The 3½-by-5-foot blue and gold banner was presented on behalf of the GD/Pomona Management Club.

"It gives us great pleasure to take part in this special program," Williams told the large group attending, "and we in Pomona are happy to welcome the GD/Electronics Management Club as a brother club in the National Management Association. Our members have received great benefits from participation in our club, and we hope that you men here will gain similarily from your active participation in this new organization."

William Lees of Westinghouse Corporation, a regional director of the National Management Association, installed officers and presented the charter.

Dr. Arthur Secord, director of community services for Brooklyn College, spoke to the group on the subject of "How to tell what you know."

The Electronics Management Club of Rochester now has a membership of nearly 400, and about 250 of these attended the charter night program.

Can't Afford Both

Racing vs Matrimony? Sports Cars Triumph

Bruce Eglinton of General Dynamics/Pomona's Dept. 6 won the Formula race at Los Angeles County Fairgrounds in Pomona last month posting the second fastest winning average speed of the day, 77 miles per hour, with his Lotus 20B Junior. The races were sponsored by United States Sports Car Club.

Eglinton started racing in 1959 while attending California Institute of Technology at Pasadena. He confines his racing to the Formula Junior class—open-wheel racers of approximately 100 horsepower and top speeds of about 130 mph.

Last year Eglinton ranked second in point ratings kept by Sports Car Club of America. This year he is currently in fourth place. His present car is a 1961 model Lotus that he races about 15 times a year.

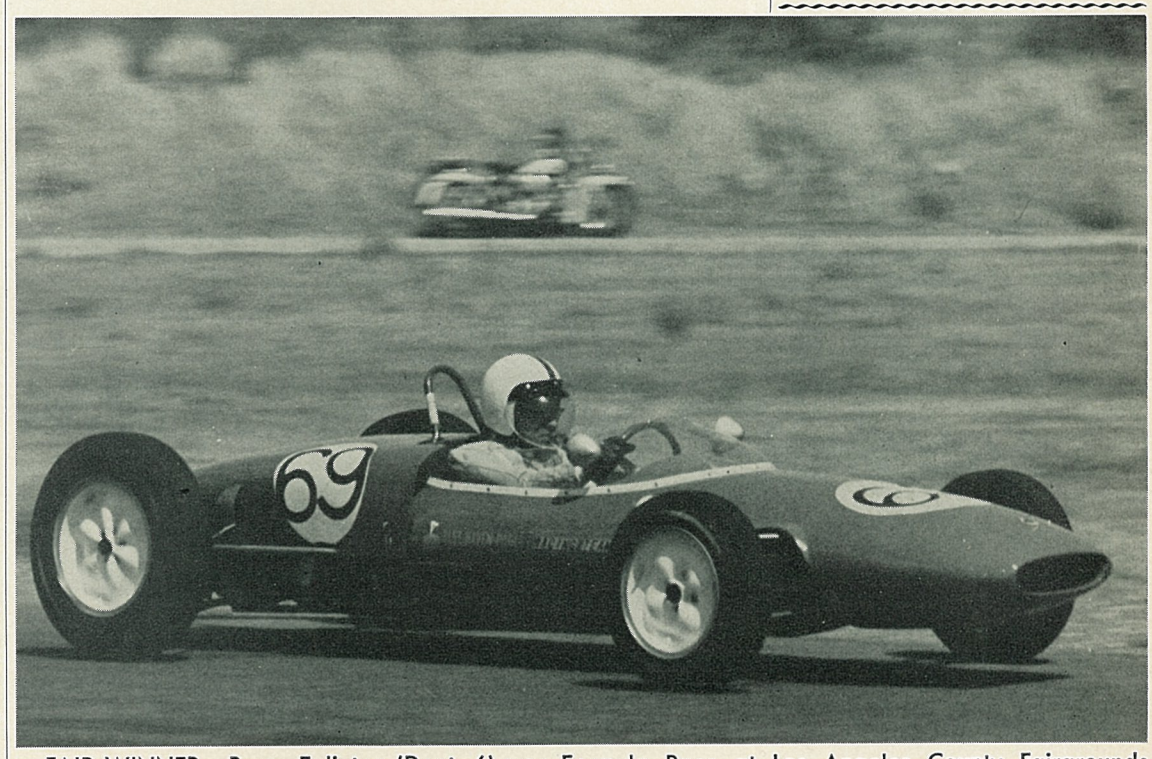
"Most of my spare time and money goes into racing," Eglinton said. "Couldn't afford the sport if I were married."

Eglinton, who joined GD/Pomona in June of 1960 after graduating from Cal Tech, receives a lot of help from friends. Jap Cottam (Dept. 6), for example, is one of several who help take the car apart in the garage at Eglinton's South Pasadena home. Then the fight begins to get the car together before race time.

"Formula racing is highly competitive," Eglinton said. "The cars are less expensive than heavier, more powerful sports cars but in most races post average speeds very close to the big ones. The Formula Junior cars weigh approximately 800 pounds and cost $4,000 to $5,000."

Eglinton serves on the board of Formula Racing Association, a group devoted to promoting interest in the sport. In most races he competes against amateur friends. However, he manages each year to enter several "big" races which attract professional drivers.

Mechanical troubles hit Eglinton in the Times Grand Prix at Riverside Oct. 13-14. In Saturday's Formula race his rear brakes went out and he finished tenth. Midway in Sunday's race mechanical failure of drive gears forced him to the pits and he failed to finish.



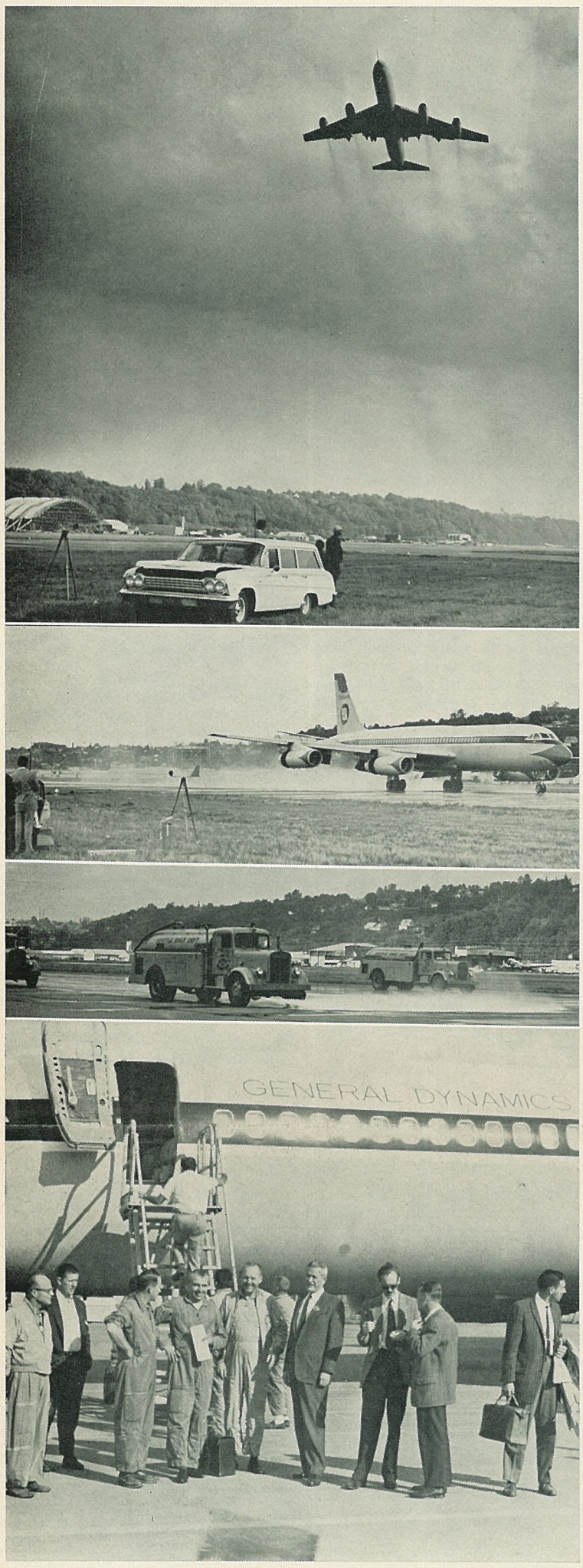
FAIR WINNER—Bruce Eglinton (Dept. 6) won Formula Race at Los Angeles County Fairgrounds last month with his Lotus 20B Junior. His average speed was 77 mph. Last year Eglinton ranked second in point ratings by Sports Car Club of America.

Veterans of Vultee Will Hold Reunion

Vultee Field veterans will gather for their 15th annual reunion at a stag dinner Saturday, Nov. 3, at Disneyland Hotel, 1441 S. West St., Anaheim, Calif.

Social hour starts at 5:30 p.m. followed by dinner at 8. Price for the dinner, including tax and tip, is $5.

All reservations must be in by Oct. 30. They are to be mailed to Vultee Club, 11010 Garfield Pl., South Gate, Calif.



WET "WEATHER"—City of Seattle trucks poured thousands of gallons of water on King County Airport for wet runway tests on Convair 990A. Part of crew is shown beside plane. From left: F. W. Chapman, flight test engineer; Don Gross, aerodynamics engineer; Howard Auten, pilot; Captain John Knebel; Ed Guske, senior flight test engineer; E. D. Shannon, manager of engineering flight test; David Blundell, American Airlines engineer; Glen Brink, engineering test pilot; R. F. Bausback, instrumentation engineer.

Dial X Phones To Communicate With Satellites

The same type of rugged "Dial-X" telephone system that serves aboard all of the U. S. Navy's Polaris-firing nuclear submarines is now being manufactured by General Dynamics/Electronics at Rochester for use in the "Syncom" communication satellite program.

"Syncom" is a planned communication satellite that will be placed in a "synchronous" orbit. That is, its orbital velocity will be matched to the earth's rotational speed, so that it will remain in a fixed position relative to a location on the earth's surface.

Most efficient use of the "Syncom" program will require a number of communications centers at various locations around the globe. Each of these centers will be a complex network of message-gathering equipment, radio transmitting and receiving systems, and distribution links.

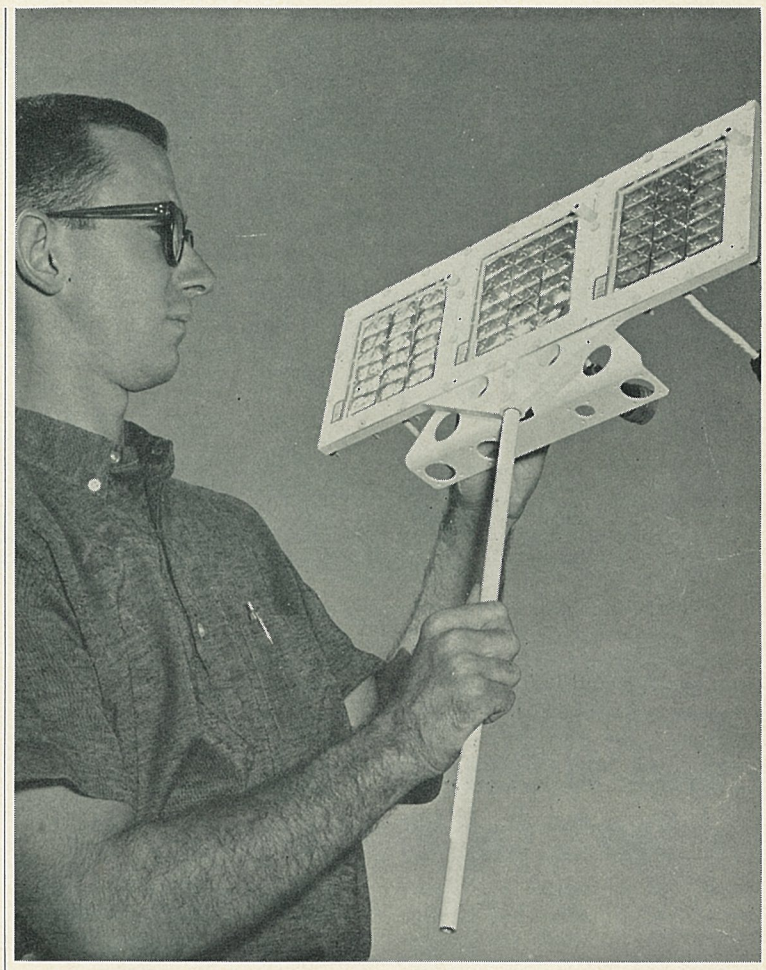
The "Dial-X" systems, which are being built under John P. Daley in industrial manufacturing at GD/E-Rochester will serve the internal communications needs of these centers. Vincent F. Renda was industrial marketing coordinator on the contract awarded by the Bendix Radio Division of the Bendix Corporation. The contract calls for three systems. Bendix is developing the centers for the National Aeronautics and Space Administration under technical direction and program management of the U. S. Army Signal Corps.

In addition to the normal "Dial-X" features, which include executive right-of-way, conference linkages, and the "magic memory" which automatically calls back a busy line as soon as it is released, the special switchboards being built for the "Syncom" project will provide full paging accessibility. This gives every telephone instrument in the system access to the paging system simply by dialing one digit. At some stations the military Type G telephone instruments will have provisions for the optional use of headsets. GD/Telecommunication will build telephones and some of the associated equipment for the program.

Test Lab Engineer Author of Article

R. D. Dickens, Dept. 500 dynamics test lab engineer, based at GD/Convair Plant 1, is author of an article appearing in the September issue of Electronic Industries magazine.

Under the title, "Analyzing Data by Least Squares," he presented a simplified explanation of application of the method used to determine the true value of common factors affecting data with respect to gyros and displacement transducers with the maximum of accuracy.



CONVERTERS—Solar panels using new concept for converting sun's energy into power for space vehicles, developed by General Atomic at San Diego, will be sent into orbit this fall.

GD/Atomic Solar Power Unit Will Be Orbited

Wafer-thin solar thermoelectric panels, representing an entirely new concept for converting the sun's energy into auxiliary electrical power for space vehicles, will make their maiden voyage into space this fall aboard an Air Force satellite.

Developed by the General Atomic division of General Dynamics Corporation, the new solar converters have the marked advantage over present silicon solar cell systems of being relatively insensitive to radiation, including that from the Van Allen belts. They also have potential weight and cost advantages.

Built by General Atomic for Lockheed Missiles & Space Company and the U. S. Air Force Systems Command's Aeronautical Systems Division, the flat panels consist of a large number of tiny thermoelectric elements made of a semiconductor material "sandwiched" between two thin metallic sheets — one a collector and the other a radiator.

Initially, three four-inch-square panels will be tested as part of an experimental package to be sent into orbit from Vandenberg Air Force Base, Calif., aboard a Lockheed-built Thor-Agena assembly.

Unlike photoelectric solar cells which convert sunlight directly to electricity, the panels first convert the sun's energy to heat and then to electricity, the operating principle being that a temperature difference across a thermoelectric material causes electric current to flow. The electricity could be used for powering space vehicle controls, guidance systems, scientific research instruments, television and other communications systems.

The panels owe their radiation resistance to the fact that thermoelectric elements are not dependent on high purity materials for successful operation. In contrast, silicon photoelectric solar cells must be made of extremely high purity materials and their performance may be seriously degraded by effects introduced by exposure to radiation in space.

Once in space, the panels will be extended from the satellite on a boom and exposed to the sun's energy. Each panel is designed to produce one-fourth watt of electrical power when exposed to full sunlight. In this test the electricity produced will not be used as auxiliary power on the satellite.

To produce electricity, the solar thermoelectric panels depend on a temperature difference between the collector plate, which faces the sun, and the radiator, which faces away from the sun. The collector converts solar energy to heat which passes to the thermoelectric elements. These, in turn, convert the heat to electricity which may then be withdrawn by completing a circuit across the collector and radiator. The radiator rejects unconverted heat into space.

In the range of a few watts to several hundred watts, the concept shows promise of being both lighter and cheaper for use in an earth orbit than any other type of auxiliary power generating system with similar output.

Runways Flooded in Rainy Weather Tests of Convair Jet 990 at Seattle

A wide-ranging Convair 990, ship No. 2, sped to Edwards AFB, Calif., last week, for further test flying shortly after a damp sojourn in the Pacific Northwest.

Although Federal Aviation Agency airworthiness certification for the Swissair 990A version was received this month, No. 2 was tabbed for further checkouts on additional customer-required items for both Swissair and American Airlines.

Completion of its present demonstrations is slated for next week, say General Dynamics/Convair flight test engineers. Besides FAA observers, GD/Convair crew members are John Knebel, captain; Warner Lowe, flight test engineer; Jack Fogleman, flight engineer; F. W. Chapman, weights engineer.

No. 2 was based in Seattle, Wash., the first 10 days of this month for wet runway takeoff and landing demonstrations for American. Purpose was to gather information to determine optimum brake pressure for landings on rain-soaked runways. Accumulated data now is being readied for evaluation.

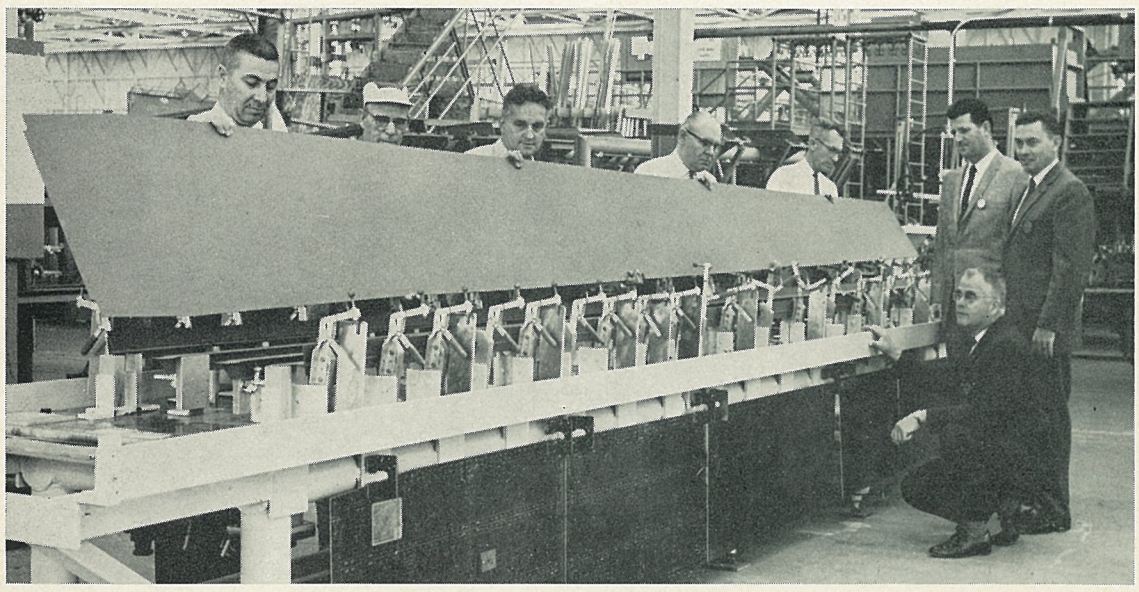
Although grounded for a couple of days during heavy natural rains and gale winds, the sturdy jetliner made 52 landings during nine flights.

Ready-made wet conditions were achieved with four City of Seattle engineering department water trucks dousing the King County Airport runway with 8,000 gallons of water as the 990 swung in for landings.

All of the GD/Convair team accompanying the plane expressed appreciation to Boeing Co.'s manager of flight test and supporting services, O. W. Crockett Jr.; chief of commercial flight test, William Lieberman; operations engineer and coordinator, William Daniels, as well as King County Airport personnel for their assistance in providing facilities and people during the operation.

"After thirty days practice they let us work on people."

"We have a number of occupational hazards . . . I'll introduce you to some of them."



C-141 MILESTONE—First assembly of C-141 empennage parts at GD/Convair Oct. 10 is witnessed by (at right) Mel Thurman, Lockheed source control inspection representative; J. M. Adamson, C-141 program manager; N. P. Pearson (kneeling), in charge of C-141 production. Placing web on stringers for vertical stabilizer rear spar assembly in fixture are E. E. Miller, assistant foreman; Stephen Smyczynski, Ed Minch, Mel Dorr. Second from left is G. W. Just, FAA designee inspector.

Entries to Close in Four Days For Sports Car 'Field Day '62'

Four days remain for sports car drivers to mail in advance entries if they intend to compete in CRA Sports Car Club's annual "Field Day '62." No mail entries will be accepted after this Sunday (Oct. 28), reminded CRA Commissioner Gerry Wright.

The championship event is slated for Nov. 4 at Ream Field, near Imperial Beach, with technical inspection starting at 8 a.m. All General Dynamics sports car drivers are urged to turn out for the main event on the CRA group's agenda.

Entrants will run in time trials, slalom, acceleration and braking tests with all events scored in accordance with the Asebring Code.

Time trials, on the 1.7-mile circuit laid out on the Ream Field runway, will consist of four continuous laps—two for familiarization and warmup and two timed laps.

Slalom running time is approximately three minutes and the acceleration and braking test will be run on a one-tenth mile straightaway.

Each contestant will be timed by three watches with timing to the nearest 1/100-minute or less. Scoring will be on the basis of total time for all three events within each class.

Dash plaques will go to the first 100 entrants and trophies will be awarded for first through third place in each class.

Only sports class vehicles will be eligible. They will be entered in the following classes: under 1,300 cc; 1,300-1,599 cc plus Alfa Guiletta Super Spyder and Sprint; 1,600-2,099 cc plus Porsche 1,600 Super and Super 90; 2,100-2,999 cc plus Porsche Carrera or Carrera G.T.; 3,000 cc and over; women, under 1,300 cc; women, 1,300 cc and over; modified cars with added accessories and modifications to the engine and running gear not readily available to majority of contestants.

Bob Chillo, as field marshal, heads the CRA team in charge of arrangements. Jack Hurt is in charge of time trials; Lou Barnes, slalom; Spud Riggs, acceleration and braking; Commissioner Wright, facilities; Clark Kerr, awards; Vern Mathews, safety inspection; Gerry Coffey, publicity; Sid Weiner and Art Andress, scoring; Chase Allen, registration; Hank Callihan, photography; Tom Kienholz, announcer.

Entries, accompanied by $3 preentry fee, may be mailed to Convair Sports Car Club, 2705 Tonto Way, SD 17. Post entries will be $3.50 at the Ream Field site.

Aeromodelers Will Take Part In Tri-Club Free Flight

General Dynamics aeromodelers are heading toward their big event of the season, second annual Tri-Club Free Flight Model Plane Meet at Lake Elsinore this coming Sunday (Oct. 28).

The meet, scheduled from 8 in the morning until 3 p.m., is sponsored by CRA Aeromodelers, Astro Modelers, and San Diego Orbiteers.

Don Larsen, CRA club president, said that at least 100 entries from the San Diego and Los Angeles areas are expected to compete. The meet, sanctioned by Academy of Model Aeronautics, is open to all AMA members.

Six events to be flown are: ½A gas powered, A gas, B-C gas combined, rubber powered, Nordic class towline glider, and hand-launched glider. Entry fee is $1.25 for each event.

Trophies will go to the top three times in each event and ribbons to fourth and fifth. Sweepstakes winner will receive a special award. Merchandise prizes will award various accomplishments. Models will be judged on total duration of three or five official flights, depending on event flown, with Academy of Model Aeronautics rules governing all events.

Contest director is Roland Dexter of General Atomic, assisted by Larsen and Nat Antonioli, both of GD/Convair, and Chuck Ogle of GD/Astro.

Spectators are welcomed at the all-day event at the Lake Elsinore flying site located 60 miles north of San Diego on Hwy. 395, then 10 miles northwest on Hwy. 71.

Safe Hunting Class Planned

A jointly sponsored ARA-CRA Hunter's Safety Course is in the offing, if sufficient interest is shown among dependents of General Dynamics employees at San Diego.

The course is for both boys and girls who desire to obtain a California hunting license before their 16th birthday. Licenses will not be issued without successful completion of the course.

R. T. "Bob" Andrews, ARA Rifle Club commissioner, will teach the course. It may be offered in the evening or on Saturday, dependent upon the desires of those signing up.

Normally, a class consists of from 12 to 14 students who spend three two-hour sessions, including one on the rifle range. Participants are taught the fundamentals of safety, firearm handling and shooting.

Registrations will be taken on a first-come, first-served basis for those contacting Andrews at ext. 1462 at Astronautics. The course will be taught at the ARA-CRA utilized Gillespie Field facility.

Gardeners to Show Their Best Blooms

Flower lovers will have a chance to view prize blooms of General Dynamics gardeners at the joint CRA-ARA Fall Show Sunday (Nov. 4) in Balboa Park's Floral Association Bldg.

Chrysanthemums and roses will share top billing. Arrangements, corsages, and children's divisions also will be open for entries from 7 to 11 a.m. on show day.

Displays will be open to the public without charge from 1 to 6 that afternoon, said ARA Commissioner Everett Henderson and CRA Commissioner Gene Zimmerman.

Turkeys Prizes In Nov. 4 Shoot

Top sharpshooters will be taking home turkeys for their performance at CRA-ARA Gun Club's annual Turkey Shoot set for Sunday (Nov. 4) at Gillespie Field range. Starting time is 9 a.m.

Luck and skill will determine winners in the 25-bird trap and skeet events, said CRA Commissioner Jack Swank and ARA Commissioner Ezra Johnson.

Scores, based on a point system, will decide prize takers in the rifle competition.

"Everyone will have an equal chance to win a Thanksgiving bird," stressed Swank, who urged all GD gunsmen to turn out for the yearly shoot.

Hunters are reminded that entries are being accepted at all employee services outlets for the Big Game drawing.

Top '62 Apprentice In Regional Race

GD/Convair's outstanding apprentice for 1962, Francis L. Dohm, was the division's only contestant in the state tool and die contest held in Los Angeles early this month.

The annual contest, sponsored by the Southern California Tool and Die Association, was held at the Pan Pacific Auditorium in conjunction with the 1962 Western Tool Exposition.

Navy Reserve Unit Reports Openings

Pay-status billets in Naval Reserve MSTS Division 11-1 at San Diego are now available for reserve officers in the rank of lieutenant and below, according to Lt. Cmdr. Ed Dangler, division training officer.

Experience in sea transport or Merchant Marine service is desirable but not required. Interested officers may contact Dangler at Plant 2 ext. 1598 for additional information.

Salvage Schedule Set For Month

Salvage yard schedule for next four weeks:

GD/Convair—Oct. 27, Nov. 10.

GD/Astro—Nov. 3, 17.

ARA Ski Club Kicks Off Season With New Officers, Activity Plans

Over 65 GD/Astro employees and families attended the kick-off meeting of ARA Ski Club's 1962-63 season, where officers were elected and plans for upcoming activities were laid.

New president of the group is Hal Moore, with Gene Rockafeller, vice president; Jane Moore, secretary; and Dick Martin, treasurer. Larry Atwell is ARA commissioner.

Named to represent the ARA club at the county-wide Sno Ball slated next month at El Cortez Hotel was Virginia Mateja, Dept. 523.

Guest speaker at the meeting was Chuck Fredericks, La Jolla sporting goods dealer, who enlisted 25 members for free dry-land ski instruction offered by his firm. Other GD/Astro employees interested in the classes may call GL-4-1410 for information.

Ski Club plans a group trip to Mammoth and Lake Tahoe areas over the New Year's holidays.

Back Stage Helpers Needed by Players For 'Roman Candle'

If you paint, draw, build or design, Astro Players want YOU!

This urgent call for help was issued this week by the ARA-sponsored "little theater" group, now well into production stages of its next show to be staged in ARA Clubhouse late next month.

Particularly sought are employees or dependents wishing to lend a hand with back stage operations, set preparation, etc. Those interested have been asked to call production manager Jim Lakin, Plant 2 ext. 757, or stage manager Sherman Zell, main plant ext. 3554.

The play is "Roman Candle," billed as "a zesty comedy about a man, a miss, and a missile—with some ESP (extra-sensory perception) thrown in for good measure."

Leading roles have been assigned to Dan McLaughlin and Joyce Crawford. Dick Elbe will direct.

Costumes Decreed For Single Adults

Costumes are the thing for ARA Single Adult Club's combination dance and Halloween party, 8:30 p.m. to midnight, Oct. 27 in ARA Clubhouse.

All single adult employees are welcome to attend, with costumes the "uniform of the day." Prizes will be awarded for the best outfits.

Admission is 50 cents per person, with GD/Astro ID card. Dance music will be provided by Fred Lewis and his orchestra.

New Hours in Effect For Cashier Offices

New hours for GD/Astro cashiers in the San Diego area are now in effect.

At the main plant the cashier's office will be open from 11 a.m. until noon and from 12:45 p.m. until 4:30 p.m. Monday through Friday. The Plant 2 office will be open from 1 until 4:30 p.m. Friday only.

Three New Astro Group Engineers For Labs Named

Supervisory appointments to head specific functions in the GD/Astronautics standards and calibration laboratories have been announced by P. I. Harr, director of reliability control.

Named group engineers were H. C. Keith for standards laboratory; R. G. Roscoe for calibration services; and J. E. Vondracek for calibration engineering. J. D. Stevens is supervisor for test equipment control and stores.

All report to A. J. Woodington, manager of standards and calibration laboratories.

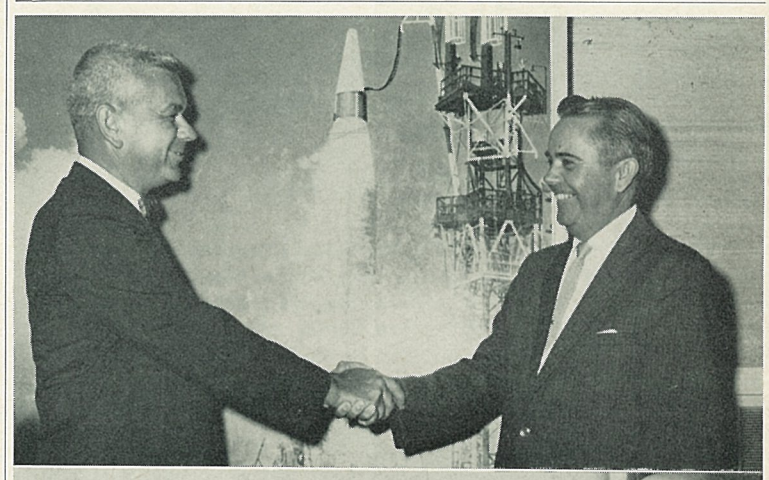
Vandenberg Seeks Blood Volunteers

VANDENBERG AFB — GD/Astronautics employees here have been encouraged to volunteer as blood donors during a campaign to replenish the Blood Bank credit.

Existing local blood supplies have been depleted as the bank assisted employee dependents requiring surgery.

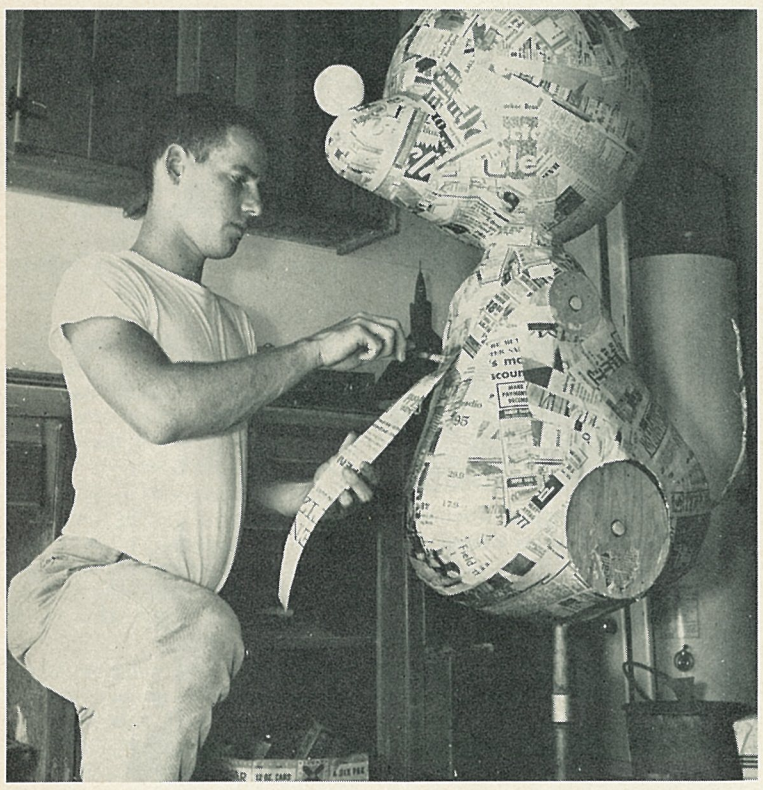
The local campaign will be conducted from 2 to 6 p.m., Oct. 31 in Bldg. 5004.

Drive chairman is Soren O. Bunderson, Dept. 576-4.



In top photo, John Hughes, left, president of AMR Management Club, welcomes Dr. Richard Morley, president of Gulf Coast Junior College, speaker at club meeting. In lower picture, shown at Plattsburgh, N. Y., where GD/Astro folk gave $6,000 to Community Chest, are Norman Harper, Beverly Boruk, Drive Chairman Donald Terry, and John Hotaling.

Sports & Recreation



PAPER MOUSE—Del Creighton slaps strip of newspaper on papier-mache mouse which will be part of ARA float in Mother Goose parade.

ARA Will Enter Float In El Cajon Parade

GD/Astronautics Recreation Association's float to be entered in El Cajon Mother Goose Parade Nov. 18 is now in final stages of construction in the ARA Area.

Working under direction of ARA Commissioner C. M. "Chuck" Ogle, Dept. 290-1, volunteers are driving toward a Nov. 15 deadline date.

The self-powered float takes its theme from "Three Blind Mice." It will feature the trio of sightless rodents (papier-mache) being pursued by a "farmer's wife" of the same material. All figures are fully animated.

Besides Ogle, other key figures in the float's development include Jerry Petty, Dept. 290, who provided art work, and Rube Crossman, Dept. 400, who is handling mechanical work on the float and its power plant.

Twelve members of Astro Wives Auxiliary are turning out 5,000 crepe paper roses to be used as decoration.

Employees or dependents wishing to assist may contact ARA Headquarters, ext. 1111, or Ogle, ext. 2551, for further information.

Picnic and Camping Occupy Explorers

Three events in quick succession have set the pace for ARA Explorers Club during past weeks.

In late September a beach party at La Jolla Shores attracted 40 members and their families. Then, Oct. 6-7 the group teamed with ARA trail bike fans for camping and exploring in Anza Desert.

The latter excursion opened with a rendezvous at Clark Dry Lake, followed by a trek via vehicle and foot into the Santa Rosa Mountains.

The following weekend, Explorers headed for the San Marcos area where they camped at Lazy "D" Ranch and explored nearby arroyos and canyons.

Information on Explorers is available from ARA Commissioner Herman Reichert, ext. 850.

Basketball Team Tryouts Scheduled

Employees wishing to try out for ARA Varsity Basketball team have been asked to attend a practice session, 6:30 to 8:30 p.m., Oct. 30, at Municipal Gym, Balboa Park.

A season schedule is now being arranged. Additional information is available from ARA Headquarters, ext. 1111.

ARA Calendar

(GD/Astronautics Recreation Association has some 40 activities in operation for employees. For information, call ARA Headquarters, ext. 1111.)

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ASTRO LENS — Meeting and model shoot, 7:30 p.m., Nov. 4, Photo Arts Bldg., Balboa Park. Bring camera and film.

BADMINTON — Turkey tournament in early November. Watch ARA bulletin boards for announcement.

CAKE DECORATING — Free classes for women, 9 a.m., Thursdays, starting Oct. 25, ARA Clubhouse.

PHYSICAL FITNESS — Free classes for women, 4:45-5:45 p.m., Tuesdays, starting Oct. 30 in ARA Clubhouse.

SINGLE ADULTS — Dance-party 8:30 p.m., Oct. 27, ARA Clubhouse. Admission is 50 cents with Astro ID card.

Golfers Face Team Match

ARA Commissioner Dick Tobias has announced selection of a golf team to represent GD/Astro in interdivisional matches with GD/Pomona Oct. 27 at Circle "R."

Wearing Astro colors in the 0-5 handicap bracket will be Hal Napier, Ken Crotz, Mac McCord and Jack Weaver, while Bob Stevens, Jim Jones, Alex Bezverkov and C. N. "Sand" Bagaloff will play in the 6-10 class.

The 11-15 handicappers are Kay Stites, John Jackman, Ernie Stuchly, Harry Dodwell, Mark Pruitt and Jim Long, with Hal Heist, Jack Boyle, Chuck Walton, Bill Moon, Lou Marine, and Hank Gallant in the 16-20 class.

Playing with 21-25 handicaps will be Paul Williams, Clark Saunders, Vince Martin and Joe Shuter.

Tobias has asked that players contact him at ext. 1641 if they are unable to take part in the interdivisional matches.

Trim Figures Aim Of Class Program

A program to assist GD/Astro women employees and dependents in building — or keeping — trim figures, will get under way Oct. 30 in ARA Clubhouse.

The free classes will meet from 4:45 to 5:45 p.m., Tuesdays, under direction of John Powell of AFPR office.

No special equipment is required. Each participant will be given an exercise card on which to chart her progress, and in addition to exercises conducted in class, will be asked to "work out" at home twice each week.

Dressing room facilities are available in the clubhouse. Additional information is available from ARA headquarters, ext. 1111.

Pistol Team Earns Trophies

Presentation of trophies to team members Gordon McPherson (master class), Roscoe Anderson (expert), Bill Winchell (sharpshooter) and Bill Worthington (marksman) climaxed recent ARA Pistol Club matches.

In firing a Camp Perry Police Course at San Diego Police Pistol Range, master class honors went to McPherson (294) and J. Knutson (292); Don Smock (293) and Anderson (290) won expert class; Harry Black (275) and Byron Clapper (252) led sharpshooters; and Worthington (239) and Ralph Jungk (236) topped marksmen.

In a .22 Short National Course it was McPherson (288) and Knutson (287) in master class competition; Anderson (284) and Smock (276) in expert class; Black (260) and Winchell (237) in sharpshooter category; and Worthington (223) and Jungk (208) in marksman.

The group holds semi-monthly firing competitions with next matches scheduled Oct. 28. Additional information is available from ARA Commissioner McPherson, ext. 3866.

CAKE DECORATING CLASS TO START

Another in Astro Wives' Auxiliary's popular classes in cake and gelatin decorating for women employees, wives and dependents, will open tomorrow (Oct. 25) in ARA Clubhouse.

Sessions will be held from 9 to 10:30 a.m., Thursdays, for eight consecutive weeks. Instructors will be Gil Hutter, Prophet Co. manager at GD/Astro, and Jack Malone, assistant manager.

Certificates of completion will be awarded those finishing the course. There is no charge for instruction, although participants will be asked to provide their own materials.

Additional information is available from Mrs. Henry Koehne, 273-2712.

SHOWER OF CARDS—Surrounded by fluttering paste-boards, Georgia (Mrs. Donald) Hatfield, left, Eileen (Mrs. Carl) Priest, and Mildred (Mrs. William) Deane climax preparations for Wives Auxiliary benefit card party slated Oct. 26 in ARA Clubhouse as benefit for needy children.

Twilight Golf Comes to End

GD/Astronautics Recreation Association's summer Twilight Golf program came to a close recently with a series of play-off matches at Stardust Country Club.

In first place was the team of Dick Tobias, Hal Napier and Sam Richter, also winner of the league which played at 5 p.m., Tuesdays.

Tied for second place were winners of the league playing at 5 p.m., Thursdays, C. N. "Sand" Bagaloff, Tom McColloch and Ad Mosco, and the runner-up team in that group, Ed Vidovich, Tom McCubbin and Lou Elfers.

First-place team in the league playing at 4:30 p.m., Tuesdays, was that of Bert Bose, Walt Swinson and Stu Peters, while runner-up in this league was the team of Kay Stites, Katie McClendon, Al McHenry and George Michaelson.

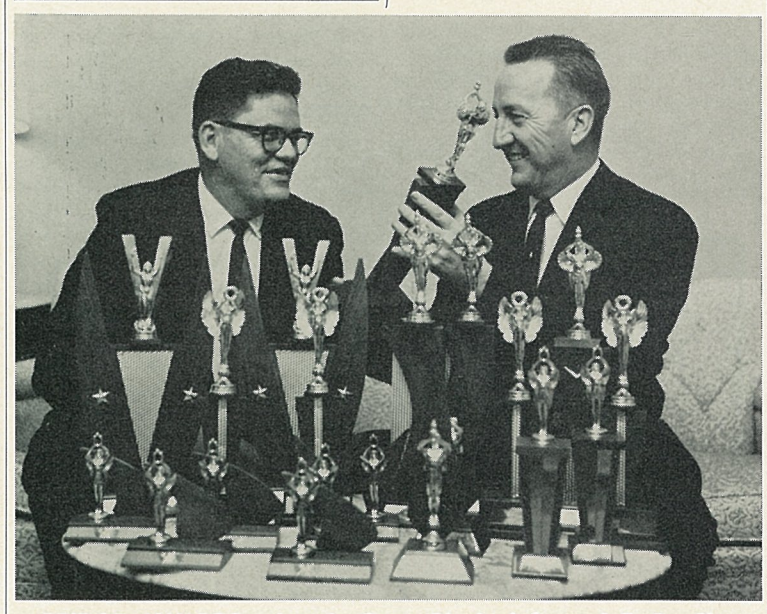
GD/Astro Men Run Tourney

ALTUS AFB—Two GD/Astronautics men here, Gene Black and F. D. Cheatwood, served as co-chairmen for the Oklahoma Shortgrass Sectional Bridge Tournament held at Shaffer Hotel Oct. 5-7.

This event, first of its type ever staged in this area, drew players from throughout the southwest.

Black, formerly of GD/Fort Worth, is a veteran player who helped form bridge activities within the FWRA while there.

Cheatwood is Oklahoma's first Life Master player. He also serves as vice president of the Missouri Valley Bridge Conference.



BRIDGE AWARDS—Astro's Gene Black, left, and F. D. Cheatwood show off trophies awarded during Oklahoma Shortgrass Sectional Bridge Tournament held at Altus, Okla., recently. Men were co-chairmen of first event of its type ever held in that area. Both are veteran players, with Cheatwood a Life Master competitor.

John Cannau Regains Plant Tennis Title

John Cannau, Dept. 967-4, regained his crown as plant champion in the recent tournament conducted by ARA Tennis Club. Cannau held the title in 1960 but lost it last year to Jack Movido.

Men's singles winner, Cannau bested ARA Commissioner Ben Cendali, Dept. 573-2, in a close 6-4, 9-7 match.

Winner of women's singles was Betty Johnson, daughter of K. L. Johnson, Dept. 101-5. She defeated Flora Cannau 9-7, 9-7 in the finals.

The team of Charles Felker, Dept. 124-0, and Cendali topped Dick and Dave Bennett (their father, Ed Bennett is in Dept. 364-1) 6-4, 6-3 in men's doubles, while Ruth Bennett, Dept. 335-1, and Betty Shuler (her husband is Carl Shuler, Dept. 170-1) won a women's doubles round-robin event.

Frances McBride, Dept. 101-7, and Larry Chambers, Dept. 305-0, defeated Ruth Berry, Dept. 556-1, and Cendali 6-2, 6-4 in mixed doubles.

Men's consolation round winner was Carl Shuler who edged Bill Holst, Dept. 101-5 by 4-6, 13-11, 6-3.

THIRD MEMBER OF FAMILY EARNS PILOT'S LICENSE

PLATTSBURGH AFB—It was three-down, one to go, for the flying Blackstone family here during the summer as 19-year-old Dorothy Blackstone became the third member of her family to earn a solo pilot's license.

Her father, F. J. Blackstone, GD/Astro master schedule analyst at Complex 8 here, served as instructor.

Home from Washington State University, Dorothy took instruction in night flying, VHF-ADF navigation, instrument flying and cross-country. The latter involved a trip alone to Albany where she discovered an airport which showed on maps had been converted to homesites. She calmly changed destination and earned her ticket.

Both Blackstone and his wife have been flying for a number of years. Now working toward her 16th birthday when she will be allowed to solo is 15-year-old Sandra, who plans to follow family tradition.

One of the favorite family pastimes is a two-hour flight to northern Maine over weekends.

The Blackstones are members of the North Country Flying Club, an organization which includes many other Astro employees.

Terrier, Tartar Ships Will Total 35 When Albany Joins Fleet

USS Albany (CG-10), first of a new guided missile cruiser class, will join the U. S. Fleet following recommissioning ceremonies scheduled at Boston Naval Shipyard Nov. 3. General Dynamics/Pomona-produced Tartar missiles provide secondary armament for the Talos-Tartar ship.

Two other Albany class ships, USS Chicago (CG-11) and USS Columbus (CG-12) are being converted to guided missile cruisers —the Chicago at San Francisco Naval Shipyard and the Columbus at Puget Sound Naval Shipyard.

General Dynamics Corporation will be represented at the Nov. 3 ceremonies in Boston by G. E. Sylvester, vice president—operations, who will present a set of quarterdeck markers—scale models of Tartar missiles—to the ship on behalf of General Dynamics/Pomona.

Albany, built as a heavy cruiser (CA-123) by Bethlehem Steel Co., Quincy, Mass., was launched June 30, 1945. Commissioned June 15, 1946, Albany served with the Second and Sixth Fleets until placed out of commission on June 30, 1958. Her hull classification and number were changed to CG-10 effective Nov. 1, 1958.

The guided missile cruiser has an overall length of 674 feet, 11 inches, extreme beam of 70 feet 10 inches and displaces 13,700 tons.

Albany (CG-10) is the fourth ship to have been named for the capital city of New York. The first Albany, a 1,064-ton sloop-of-war, was launched June 27, 1846. She was armed with four 8-inch smoothbore rifles and eighteen 32-pounder rifles. The ship was lost at sea in 1854.

The second Albany, a screw sloop-of-war, was commissioned March 14, 1868. The ship was armed with eight 9-inch guns, one 60-pounder rifle, four 24-pounder bronze howitzers and one 12-pounder bronze howitzer. This ship was placed out of commission on Jan. 7, 1870.

A protected cruiser, the third Albany, was built by Armstrong, Mitchell and Co., Newcastle on Tyne, England. Originally the Brazilian cruiser Almirante Abreau, the ship was purchased while on the ways March 16, 1898. Renamed Albany, the ship was 254 feet in length, with a beam of 43 feet and displacement of 2,769 tons. Armament consisted of six 6-inch guns, four 4.7-inch guns, ten 6-pounders, eight 1-pounders, two .38-caliber guns and three 18-inch surface torpedo tubes. Following service in World War I, the ship was decommissioned.

When Albany joins the fleet, the Navy will have a total of 35 ships armed with Advanced Terrier and Tartar missiles built by General Dynamics/Pomona. This includes two aircraft carriers, three heavy cruisers, one nuclear-powered cruiser, three light cruisers, one nuclear-powered "double-ender" destroyer leader (frigate), 10 single-launcher destroyer leaders, one "double-ender" frigate and 14 destroyers.

Electronics Course Offered by U. of Cal.

A seminar course, "Marketing Management in the Electronics Industry," will be offered throughout the next month by University of California Extension for San Diegans employed in electronics.

Four day-long seminars will be held at the Kona Kai Club, Shelter Island. First will be this Saturday (Oct. 27).

General Dynamics people interested may obtain information from University Extension office, 1221 Fourth Ave., SD, BE-2-7321.

Data on Flow Study Presented in Paper

Harvey Dershin of GD/Pomona physics laboratory presented a paper at the Air Force Office of Scientific Research Separated Flow Conference held Oct. 9-10, at Princeton University, Princeton, N. J.

"Separated Flow Studies at General Dynamics/Pomona" was the title of a paper based on Dershin's recent research.

VALUE ENGINEERS ELECT B. W. KAHLA

A General Dynamics/Convair man will head the San Diego Chapter of Society of American Value Engineers (SAVE) following election of first permanent officers this month.

B. W. Kahla, chief of systems and procedures at GD/Convair and former deputy value control coordinator at GD/Fort Worth, is newly-elected president.

Other officers are R. D. Allen of Ryan Aeronautical Co., first vice president; C. W. Christie of GD/Electronics, second vice president; D. D. Shirk of Solar Aircraft, secretary; and H. L. Braasch of Ryan, treasurer.

Next SAVE meeting will be Nov. 6 at Bahia Hotel on Mission Bay for installation ceremonies. Speaker will be M. E. Davis, value analysis coordinator of Spaulding Fibre Co.

Symposium Hears Two From Pomona

A. C. McMaster and E. D. Heller of General Dynamics/Pomona spoke Saturday (Oct. 20) at a Product Assurance Symposium conducted by American Society for Quality Control, San Fernando Valley Section, at Glendale, Calif.

Heller, GD/Pomona value control coordinator, spoke on "Product Assurance Through Value Assurance." He was speaker for opening session on value engineering.

McMaster, GD/Pomona director of quality control, spoke during quality engineering portion of symposium. Subject of his talk was "Assurance Specified and Controlled in Open Competition."

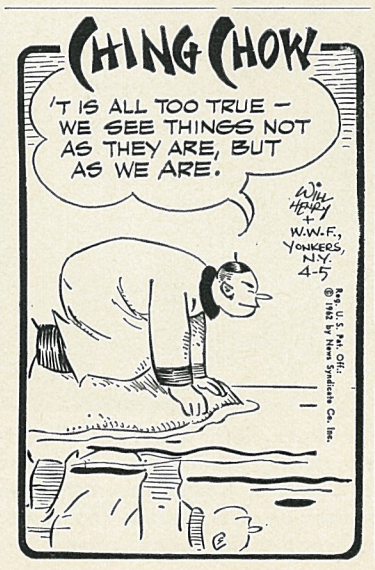
Hustler Refuelers Decorated by AF

Air Force Commendation Medals have been awarded to seven KC-135 combat-crew members from 305th Bomb Wing who helped refuel a B-58 Hustler on its record-breaking Los Angeles to New York flight.

Crews are Maj. M. J. Beaucond, and Capts. J. A. Fuchs and E. J. Breax Jr.; and Capt. C. T. Bates, Lts. D. L. Austin and T. J. Stewart Jr., and M/Sgt. W. E. Hicks.

Col. Frank L. O'Brien Jr., 305th commander, presented the medals for "demonstration of outstanding airmanship and professional knowledge."

The B-58 smashed three records during the round-trip flight.



CURRENT REPORTER—John K. Liu of GD/Electronics at Rochester lowers new sensing device into Seneca Lake. It detects ocean currents and has wide applications in oceanography.

GD/E Develops Device To Sense Sea Currents

An underwater electronic device so sensitive that it can measure the velocity of a deep sea current that travels only one mile in 3½ days has been developed by General Dynamics/Electronics at Rochester, N. Y.

Only 8 inches in diameter and 9 inches long, the unit can also measure velocities as high as 20 knots—about three times the speed of any known ocean currents. In addition, it provides an indication of the current's direction with reference to magnetic North that is accurate to within two degrees.

The sensor is expected to have wide applications in oceanographic research for both military and scientific purposes.

Incorporating a transistorized amplifier powerful enough to provide a signal for direct recording over five miles of cable, the device requires a power input of only 20 milliwatts. Its normal output is in digital form that can be recorded directly on magnetic or paper tape or used to drive counter or meter readouts. Analog readouts are also possible.

Inertia of the rotor, which is only two inches in diameter, is reduced to a minimum by three means—use of high strength plastic that has neutral buoyancy in seawater; seawater-lubricated sapphire bearings; and a photoelectric revolution counter.

The unit weighs 12 pounds in air, 6 pounds in seawater and all its parts are either insensitive to pressure or pressure-protected to 35,000 feet.

Johnson Talks On Delta Wing

R. L. Johnson, director of flight at General Dynamics/Fort Worth, addressed high-ranking officials of the Air Force 84th Fighter Group, Spokane, Wash., late last month, describing development of delta-wing aircraft and speculating on future fighter planes.

Maj. Gen. Arthur C. Agan, Deputy Chief of Staff for Plans, Air Defense Command Headquarters, Colorado Springs, Col., special guest at the Commanders Dining-In gathering, followed the same trend in his talks on operational capabilities of past fighter aircraft and what military requirements of future aircraft might involve.

During the evening Johnson and Troy Vaughan, GD/Convair field service representative at Geiger AFB, presented ten F-106 pilot checkout and Mach 2 pins in a mass ceremony to a new group of 498th Fighter-Interceptor Squadron pilots who recently soloed in the Convair-built jet interceptor.

FATIGUE SPECIALIST ON LECTURE TOUR

Clarence R. Smith, GD/Convair fatigue research specialist, left last week for a three-and-a-half week junket which will take him across the country, and probably, into Mexico speaking before various groups and collecting material for a Navy-commissioned manual.

During his tour he will present his theory of fatigue life prediction to American Airlines overhaul base personnel, Tulsa, Okla., and attend the national convention of the Society for Experimental Stress Analysis at Milwaukee, Wis., this week, Oct. 24-27.

Other stops will be at Wright-Patterson AFB, Dayton, Ohio, and at Philadelphia, Pa., where he will speak before a meeting of the Society.

As the Society's international chairman for local sections, he plans to attend an organizational meeting to form a section of the group at the University of Mexico. In addition, he will visit aircraft overhaul bases in Mexico City and cities in the United States collecting material for the "Fatigue Manual for Aircraft Designers."

Spacecraft Moon Landing Simulated

Miniature "moon dust storms" are being created by General Dynamics/Astronautics scientists in preliminary studies concerning jet blast effects on the lunar surface.

Object of the studies is to determine just what happens as a jet blast from a spacecraft strikes the moon's surface in providing a cushion as it backs down for landing.

Answers are extremely important to astronauts who will make such a landing.

For instance, dust could billow up and obscure his vision; lunar particles could damage the craft; jets might create a deep hole into which the spacecraft would sink, etc.

Initial experiments concern the flow of a jet of gas in a vacuum and what happens when blasts strike a dusty surface. They show where the dust goes, the pattern it makes and what the shock wave looks like.

Simulating the moon's atmosphere was accomplished by creating a vacuum in a bell jar. A tiny glass replica of a rocket engine nozzle is mounted inside. An attached tube sends air through the nozzle to simulate the jet blast.

Present studies are not concerned with the presence of heat in the jet or the problem of heat transfer.

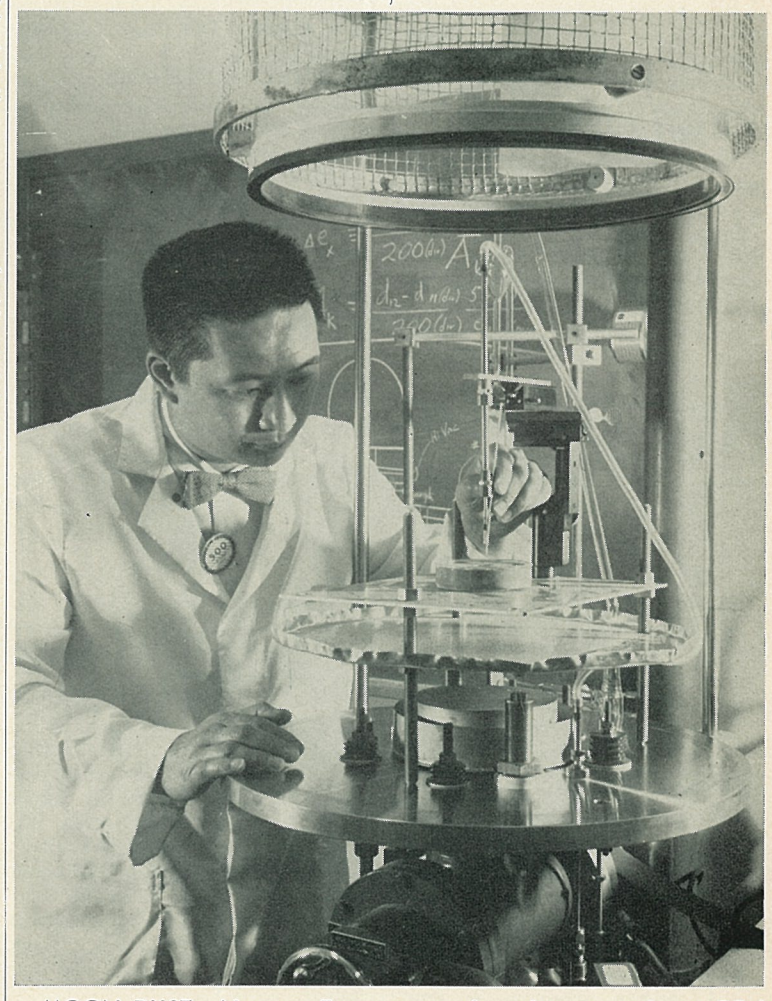
Since the composition of the moon's surface is unknown, Astro scientists are conducting experiments with a variety of different size dust particles and densities. Substances used include cork dust, powdered aluminum, talcum powder and sand. The thickness of the dust layers is varied, too.

Test substances are contained in a glass dish placed below the simulated nozzle. Test time is usually about one second. Run time is brief because the air flow causes the vacuum to be lost.

High speed motion picture cameras capture details of the test. Shadowgraphs are also made to study shock waves as the air hits the test surface.

Variations include various sized nozzles and different heights for the nozzle above the test surface.

Astronautics' fluid physics section of the space science laboratories is conducting the tests.



MOON DUST—Norman Fong, research assistant, works at GD/Astro on experiments to determine what happens when jet blast hits moon's surface. Vacuum is created in jar lowered over area. Tiny nozzle aims air blast at substances like powdered aluminum.

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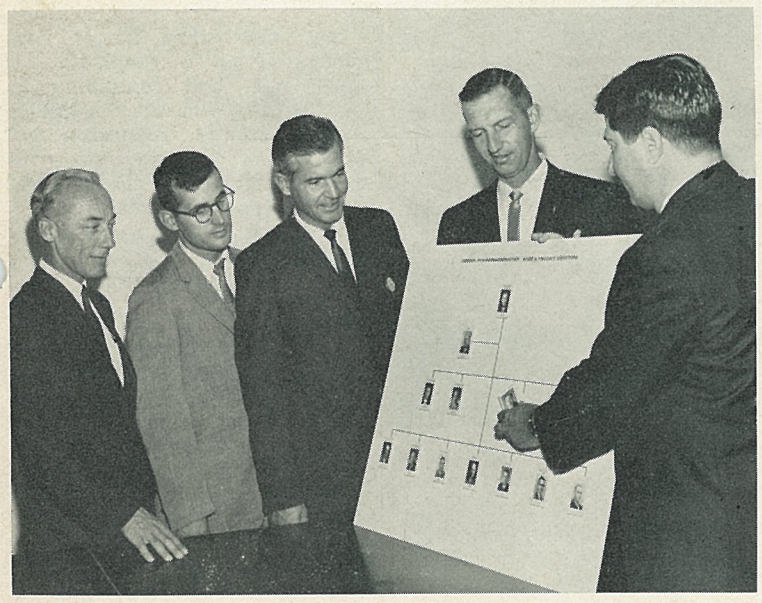


HERE TO LEARN—Major W. A. Wenberg, Capts. D. L. Picardat and B. E. Goode, and Lt. Col. V. A. Black, participants in Air Force Education with Industry program at GD/Astro, are briefed by Reese Graves, management development supervisor, who uses new training aid to explain organization.

Four Officers Report For Tour of Training

Now at General Dynamics/Astronautics are four Air Force officers who are participating in the "Education with Industry" (AFEWI) program.

During 10-month assignments, officers will spend some time with each of GD/Astro's operating departments while pursuing one of two training plans.

Lt. Col. Vincent A. Black and Major Walter A. Wenberg are involved in a project management course.

This is designed to familiarize them with management structure, engineering approaches and production methods used in fulfilling Air Force contracts.

Participants in an industrial planning and procurement course are Captains Bernard E. Goode and Dale L. Picardat. This program emphasizes industrial organization and operation.

GD/Astro is one of 35 major aerospace companies conducting the AFEWI program in cooperation with the Air Force Institute of Technology. Training here will be followed by assignments to executive and administrative positions in the Air Force aerospace program.

At GD/Astro, AFEWI is administered by educational services section of industrial relations (Dept. 130-3).

Relay Race

Truck Rendezvous System Speeds Cargo For GD/Astro

If General Dynamics/Astronautics engineers at Vandenberg AFB urgently need a piece of missile support equipment from San Diego, they can reasonably expect it to be on hand the following morning.

If the material is heavy and time is short, odds are good that their cargo will travel by semi-trailer in a unique "turn-around" system used by GD/Astro in logistic support of California operations.

Heart of the system is the fleet of trucks and semis maintained at GD/Astro's main plant by transportation (Dept. 250-5). Here it consists of six tractors and four trailers, with three drivers to operate the "rigs" on first shift and four second shift drivers. Comparable equipment is maintained by GD/Astro operations at Vandenberg AFB and Edwards RS.

In the Vandenberg turn-around, a semi leaves San Diego with a trailer-load of cargo at the same time as a similar rig gets under way from Vandenberg AFB.

Tractors deliver their loads to a prearranged location in Sherman Oaks, roughly half-way for each. Here trailers are exchanged and drivers head back to their points of origin. The system permits both drivers to complete the trip in one working day.

A similar turn-around system is used between San Diego and Edwards RS with the load exchange taking place at Colton. Transportation also handles direct trips to San Bernardino by semi-trailer or two-ton truck, and a regularly scheduled Los Angeles courier service via station wagon.

Excluding the latter service, long-run trips are scheduled as needed for high-priority cargo, with the recent average running about four runs per week.

Work for a daylight run starts at the main plant the previous evening, although trips may be made on any shift. W. C. Stubbs, assistant foreman, directs a sec-

(Continued on Page 2)

FLANKED — Paused at traffic light, this is view in rear-view mirror, showing Los Angeles traffic flanking GD/Astro semi-trailer.

Field Service Key Personnel Meet in Omaha

General Dynamics/Astronautics principal field service engineers from across the nation converged on Omaha recently for the largest single gathering of key personnel from this organization ever held.

Twenty-six men took part.

R. K. Ruhe, Astro's chief of support systems and field service engineering, was conference leader. Also attending from the main plant were General Supervisors D. P. Bender and G. W. O'Hare and Supervisors Rudy Romero and J. T. Ready.

Paul Hurly, General Dynamics Corporation manager at Omaha was a special guest as were top officials from Strategic Air Command (SAC).

Ruhe pointed out the conference was held in Omaha to permit all principal engineers to discuss mutual problems with SAC leaders and to shorten travel distances. The two-day affair was held over a weekend to minimize absence from duty stations.

"The exchange of information, both up and down stream, proved again to be highly important," Ruhe said. "Topics were selected from all phases of our operations and a round table discussion allowed new ideas and thoughts to be included."

Of particular importance was a "headquarters activities" session in which principal engineers assigned to those functions presented present and future plans revealed to them. Taking key roles were: M. A. Hein of Vandenberg AFB; J. L. Decker of the 15th Air Force; E. T. Hubbard from Strategic Air Command; H. K. Myers from San Bernardino Air Materiel Area; W. J. Smith from the 8th Air Force; and W. H. Schmitz from 2nd Air Force.

Also taking part were the following principal field engineers with their base in parentheses: M. H. Schultz (Chanute); I. L. Tedin (Vandenberg); T. L. Tanna and L. C. Pinkston (Dyess); D. F. Hamm and L. D. Sullivan (Offutt); A. J. Anderson (Warren); B. J. Cole (Sheppard); R. W. Miller (Altus); L. J. Evetts (Walker); W. T. O'Gorman (Plattsburgh); W. C. Kantmann (Forbes); C. A. Foster (Lincoln); W. L. Presson (Schilling); and J. M. Ekstrum (Fairchild).

Field service engineering is part of GD/Astro's product support department, headed by E. A. Reynolds, director.

In the field, engineers must be available to assist customer, around the clock, seven days a week.

Air Force Seeks Standard Launch Version of Atlas

An Air Force program to standardize its space launch vehicles is reflected in a new contract awarded recently to General Dynamics/Astronautics.

Totaling approximately $76-million, the contract calls for Astronautics to design and develop a standard space launch version of the Atlas ICBM; to modify Atlas space launch pads at Atlantic (Cape Canaveral) and Pacific (Vandenberg AFB) missile ranges; and to produce and launch 35 of the new space boosters.

This new "bird" will be called the Atlas SLV III.

It consists of the basic Atlas airframe and the Rocketdyne MA-5 liquid propellant three-engine cluster. Engines will be up-rated from 360,000 to 390,000 pounds of thrust, equaling Series "E" and "F" Atlas ICBMs.

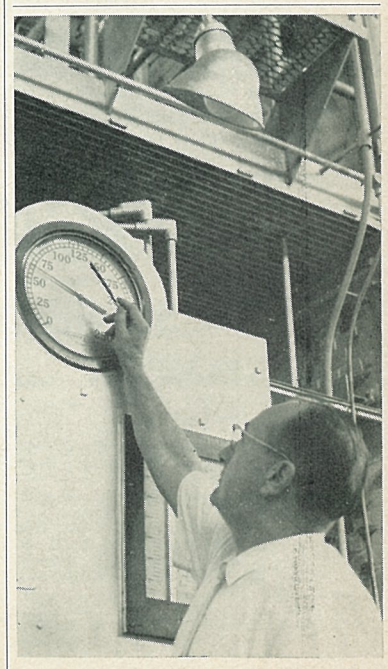
Standardized guidance, electrical system, autopilot, tracking, and telemetry kits will be provided, with appropriate "black box" units tailoring each space launch vehicle to the mission and launch pad. Launches scheduled at Cape Canaveral will feature the General Electric Model III-G guidance kit, while a GE Mark II guidance kit will be provided for those launches slated for Vandenberg AFB.

Umbilical connections and other points of interface between SLV III and the launch stand will be modified to identical configurations at both launch locations, making the launch of the SLV III possible from either location, with the proper kit installation.

By making the appropriate kit installation on Astro production lines, a maximum of only about two-and-a-half months are required from identification of a "bird" for a specific mission. Previously, to cover both Air Force and National Aeronautics and Space Administration requirements called for identification to be made at least eight months in advance.

Standardization is expected to eliminate any production and launch problems with a resultant reduction in long-term cost. Also, more flexibility will be provided in selection of vehicles for specific missions and reliability will be increased.

At General Dynamics/Astronautics, C. S. Ames is vice president and program director for space launch vehicles. J. S. Berggren is assistant program director for the standardized space launch vehicle. T. J. O'Malley serves as space launch operations manager at AMR and C. A. Johnston is space systems launch operations manager at PMR.



WAY DOWN — Ken Taylor, plant engineering assistant foreman at Plant 2, shows how reduction of steam pressure (from 125 to 60 psi) has led to noticeable savings. Change was in line with current Astro drive to reduce utility cost but does not affect efficiency of operations.

Steam Studies Bring Saving

Careful studies of that "head of steam" generated at Plant 2 for many years during summer months proved it could be reduced by half without affecting operations.

And the utility cost savings realized are showing up nicely in a division-wide effort to chop $200,000 off the $1-million plus spent annually at General Dynamics/Astronautics for utilities.

Plant 2 steam plant operational changes are now estimated to save about $7,573 per year.

A portion of this, about $2,782, will come from a new practice of shutting down boilers at the conclusion of Friday shifts and restarting them early Monday morning. This was begun in late

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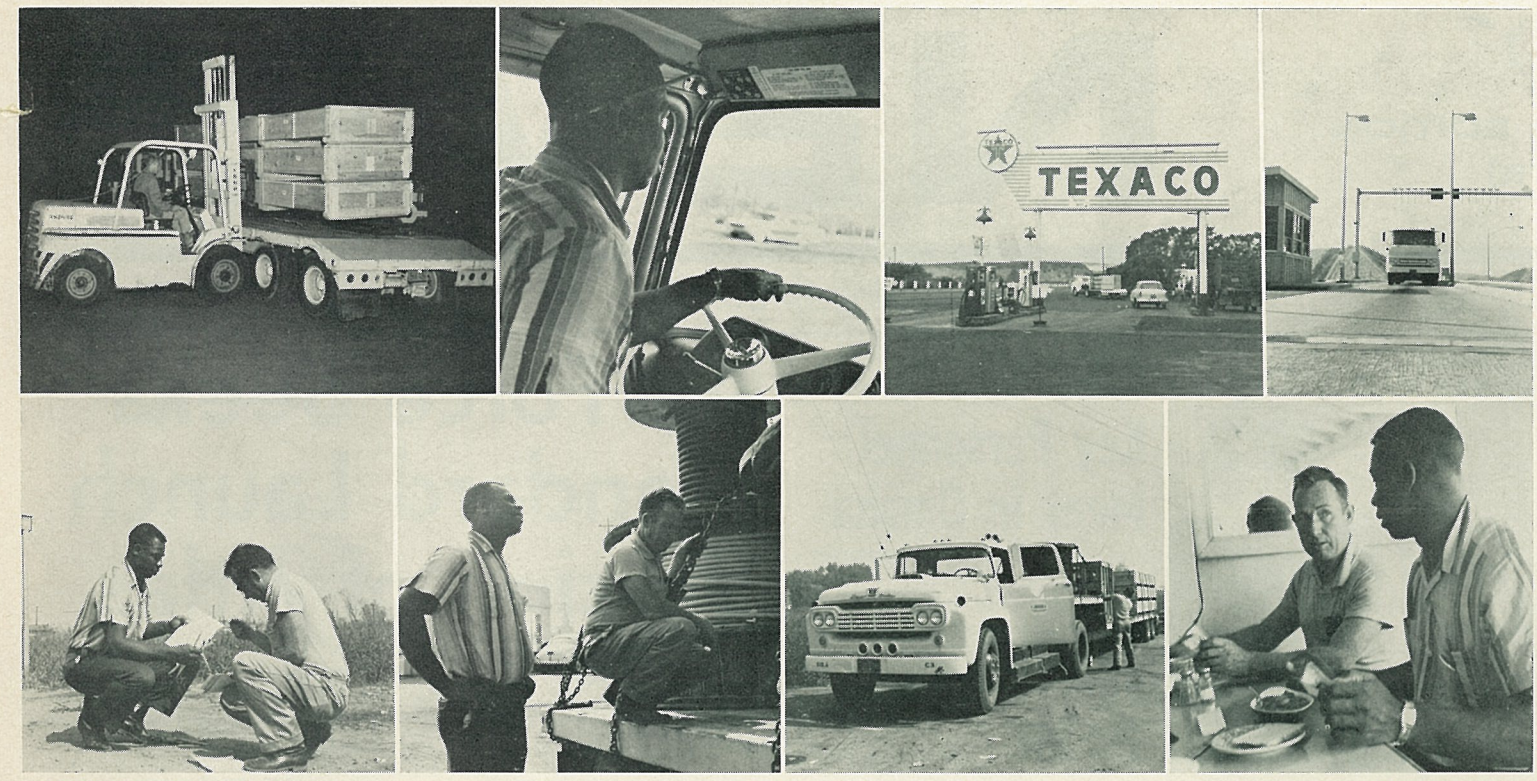
ALL PRESENT—Leading GD/Astronautics field service engineers from across nation are shown during recent two-day conference at Omaha. Meeting led to exchange of information with SAC on Atlas and updating on current programs.



ROUND TRIP—GD/NEWS went along on recent rendezvous of GD/Astro trucks from San Diego and Vandenberg AFB. At top left Charles Mushbacher, fork lift operator, loads cargo for early morning start at San Diego and in next picture driver Acie Terrell hits the road. First stop is San Onofre for quick coffee break, followed by another stop for state weighing station. At destination (Sherman Oaks) Terrell and Bill Wynne, driver of Vandenberg truck, lower left, check paperwork and respective loads before grabbing a quick bite, lower right, prior to driving homeward. Drivers average 100 miles per day on road.

Log Book Entries

Service Emblems

MAIN PLANT

Service emblems due during the period Nov. 1 through Nov. 15.

Twenty-five-year: Dept. 567-7, F. O. Jones.

Twenty-year: Dept. 340-0, H. C. Medearis; Dept. 450-0, J. R. Evans; Dept. 831-1, T. E. Becht.

Fifteen-year: Dept. 141-3, E. E. Franke; Dept. 143-2, H. L. Johnson Jr.; Dept. 362-3, H. A. Jennings; Dept. 374-5, W. R. Gordon; Dept. 401-3, T. R. Barthel; Dept. 521-9, Gladyce H. Hersh; Dept. 523-1, M. W. Hartman; Dept. 964-2, L. W. Marr.

Ten-year: Dept. 131-2, P. F. Stone Jr.; Dept. 143-3, Miriam Newnum; Dept. 170-1, G. J. Wright; Dept. 191-0, Marjorie E. Mueller; Dept. 193-3, D. S. Churchill; Dept. 222-1, Jessie G. Waddell; Dept. 223-2, Madeline V. Green; Dept. 322-8, B. H. Michael; Dept. 344-1, W. T. Roberts; Dept. 360-2, R. J. Reid; Dept. 401-3, H. J. Welde Jr.; Dept. 451-0, S. M. Burks, R. M. Hill, G. R. O. Kirkeby, H. E. McDonough; Dept. 682-2, Arthur Valdivia; Dept. 756-0, G. R. Hargis; Dept. 759-0, A. A. Houle, Carl Robertson.

ALTUS AFB

Ten-year: Dept. 617-4, J. W. Nester.

PLATTSBURGH AFB

Twenty-year: Dept. 620-9, C. B. Rogers.

Fifteen-year: Dept. 620-3, Prestle Penn.

Ten-year: Dept. 620-3, V. L. Ogle Jr.

SYCAMORE

Ten-year: Dept. 573-3, R. C. Schry.

WALKER AFB

Ten-year: Dept. 619, L. E. Sadler, E. C. Wilkinson.

Promotions

MAIN PLANT

Transfers to or within supervision effective Oct. 22.

Dept. 101-1, Data Processing: To clerical asst. supervisor, J. L. Glover.

Dept. 141-0, Quality Assurance: To process control supervisor, W. G. Lux.

Dept. 143-5, Quality Control: To inspection supervisor, G. A. Knauss.

Dept. 250, Plant Engineering: To plant engineering general supervisor, S. Chavez, R. D. Leonard, R. H. Wallace. To plant engineering supervisor, A. F. Delos Jr., W. E. Jones, D. E. Merriam, D. D. Sturhann. To asst. foreman, J. L. Heck.

Dept. 290-0, Applied Manufacturing Research and Process Development: To manufacturing development supervisor, E. R. Foor Jr.

Dept. 521-6, Engineering Administration Sub-Department: To engineering services asst. supervisor, J. A. Fabbri.

Dept. 598-2, Development: To asst. research group engineer, J. A. Courtright.

Dept. 961-4, Centaur Design Engineering: To design group engineer, G. W. Norris Jr.

Dept. 966-4, Centaur Design Engineering. To asst. research group engineer, F. I. Backus Jr.

VANDENBERG AFB (PMR)

Dept. 391-1, AWS Design Engineering: To asst. design group engineer, R. N. Keltner.

Dept. 576-0, GD/Astronautics Operations: To contract administrator, D. G. Moore.

W. F. McGrath, Dept. 382-3, receives his 25-year service emblem from GD/Astro President J. R. Dempsey.

Also receiving 25-year emblems from Dempsey recently were George W. O'Hare, left, Dept. 324-0, and Paul M. Benner, Dept. 140-0.

Births

MAIN PLANT

LESH—Daughter, Lauri Evelyn, 6 lbs., 10½ oz., born Oct. 8 to L. H. (Dept. 782) and "Pitter" (Dept. 833) Lesh.

Deaths

MAIN PLANT

BATES—CURTIS L., Dept. 010-4. Died Oct. 28. Survived by wife, Alice, and two sons.

SHEPERD—Lloyd E., Dept. 756-0. Died Oct. 26. Survived by wife, Marian and two children.

WALKER AFB

QUEEN—Myrtle E., Dept. 619-5. Died Oct. 18.

General Dynamics NEWS

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* * *

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Relay Race

Truck Rendezvous System Speeds Cargo For GD/Astro

(Continued from Page 1)

ond shift crew of transportation employees who work with shipping (Dept. 833) in loading material aboard a trailer.

Early next morning, C. E. Adams, assistant foreman, assigns a driver and truck-tractor to the load.

The driver, who assumes responsibility for his cargo, will personally tie down his load with "chains and boomers." Once the tractor is coupled, he carefully checks brakes, lights and other safety equipment.

Then begins a long, rough ride through freeway traffic, where, despite highway hazards, the heavy rigs with their multiple gears and air brakes, have had no serious accidents.

On the Vandenberg AFB run, the San Diego rig pulls in behind a Sherman Oaks service station shortly after noon. Within minutes a similar semi from Vandenberg AFB transportation (Dept. 576-6) rolls up behind it.

Business first, so the drivers switch trailers and complete necessary paperwork; then usually walk to a nearby diner for lunch. Mealtime over, they recheck their new loads and start their respective trips back to "home base." The round trip takes each slightly over eight hours.

In the course of a year, each driver will average roughly 100 miles at the wheel per working day.

GD/Astronautics main plant transportation is part of plant engineering, with W. J. Stanley, manager. J. F. Speed is transportation general foreman, while N. E. Lara is first shift foreman and J. C. Rice heads second shift operations.

Steam Studies Bring Saving

(Continued from Page 1)

September.

The remainder of the savings will result from lowering steam pressure in the non-heating months. This is approximately five months per year when heat is not required in office and work areas.

Steam pressure is measured in pounds per square inch (psi). In non-heating months, steam is required only in the cafeteria, processing and steam cleaning areas. In the past, boilers have generated 125 psi for this purpose although only steam cleaning required more than 50 psi.

Careful manipulation of controls and outputs now allow steam pressure to be maintained at 60 psi at the boilers, resulting in a noticeable saving.

Additional studies continue at Plant 2 in this operation with a hope of still further reduction in the near future, according to W. J. Stanley, manager of plant engineering and leader in the utility cost effort.

Centaur Depts. Sponsor Meet For Mgt. Club

Two guest speakers will be featured at the Nov. 14 meeting of General Dynamics/Astronautics Management Club to be held in the Bounty Room of OceanHouse Hotel.

The program is arranged by Centaur departments, and is the first to be sponsored by a GD/Astro project group.

Speakers will be Cdr. Forrest S. Petersen, former X-15 pilot, and Robert S. Dill, oceanographer with Navy Electronics Laboratory. Cdr. Petersen will describe experiences as a test pilot and show films of X-15 flights.

G. L. Hansen, vice president and program director—Centaur, is in charge of general promotion for the meeting.

Other key arrangements are under direction of G. Deane Davis, K. W. Jeremiah, T. C. Courington, E. J. Bryant, Don Schroeder, W. R. Monroe, L. G. Granstedt, F. E. Wilhelm, C. B. Burkholder, J. C. Cannady, P. Green and W. F. Radcliffe.

Tickets for the dinner meeting are available from Management Club Boosters throughout GD/Astro facilities in San Diego.

Wives Auxiliary To Lunch Nov. 14 At Harbor House

Astro Wives' Auxiliary will hold its monthly luncheon meeting Nov. 14 at Harbor House. Wives of all Astro employees have been invited to attend.

A social hour will commence at 11:30 a.m., followed by luncheon at 12:30 p.m. Reservations may be made through Nov. 12 with Mrs. Louis Ferriera, BR-3-7634, or Mrs. Lloyd Hanson, JU-2-7843.

Wives have also been reminded that participants are still being accepted in free cake and gelatin decorating classes now in progress in ARA Clubhouse.

Sessions are held from 9 to 10:30 a.m., Thursdays, and 7:30 to 9:30 p.m., Fridays.

Supervisors' Development Plans Drawn

An "individually tailored" program for each of General Dynamics/Astronautics 3,000-plus supervisors, is the goal of management development group of educational services (Dept. 130-3).

Beginning when he is first nominated as a candidate for supervision, and continuing as long as he is a member of middle management, the supervisor will have extensive contact with the small management development staff supervised by Reese Graves.

With a view to making "good managers better" the group takes a three-fold approach to its task.

"Our aims are to aid in identifying management potential, in training management candidates, and in insuring effective management utilization within the division," Graves explained.

To put this plan into action, Graves and management development specialists G. C. Merrill, J. T. Lockwood and J. N. White take the Management Personnel Appraisal Record used throughout General Dynamics Corporation as a starting point.

This is an annual assessment, prepared by his superior, which measures each supervisor against prescribed standards.

Ideally, when a candidate is nominated for promotion to supervision, he is interviewed extensively and takes a battery of tests to determine his personal areas of weakness and strength as a manager. He is enrolled in a 20-hour course in basic leadership.

Later, as a supervisor, he attends a 20-hour Supervisor's Seminar, and still later, an advanced seminar along similar lines.

Throughout this period, management development specialists are in constant contact with his superiors, analyzing his expanding Appraisal Record, and suggesting means of guiding his development.

They encourage him to "build up" his weaker points, perhaps through participation in "outside" activities (Management Club, community organizations, sports, etc.) where he can further exercise management techniques.

When he reaches "middle management," defined roughly as that area between "first line supervision" and staff level, he may be nominated to attend the 40-hour "directed discussion" Advanced Management Seminar.

Here, 20-man workshop sessions concentrate on theory of management functions—organizing, leading and controlling. Detailed are such phases as "organization theory," a look at actual division organization, and discussions of case problems.

Again, management development specialists are called upon to guide discussion, while special "resource speakers" cover certain areas.

Last class participants, for example, heard E. V. Russell, production electronics general foreman (and Management Club president) discuss "Problem Solving and Decision Making," while F. E. Wilhelm of the Centaur staff spoke on "Leadership and Management Definitions."

Other speakers were C. R. Walker, program planning and control manager, and L. A. Chambers of PERT administration.

"We hope to provide GD/Astro management with essential knowledge, skills and attitudes, and in another area, to aid the technically oriented in viewing management as a profession distinct from their specialties," Graves summarized.

GD/Astro Son Wins 'Death Valley' Role

Terry Donnelley, 21, son of GD/Astro's Laura Donnelley of Dept. 322-7, is now in Hollywood to be filmed for his first TV role.

Donnelley will appear in the Death Valley Days production "Grotto of Death."

Radar Can't Spot B-58 Without Plane's Help

Test engineers are hanging a space-age electronic "cowbell" on the B-58 Hustler to make sure they can find it during simulated bomb runs over the Kirtland AFB range.

Radar operators found it so difficult to see the Hustler on their ground-station screens that GD/Fort Worth was forced to install a special tell-tale radar beacon on the B-58 to make detection easier for the radar operators.

W. T. Abbott made this significant sidelight public in a talk for the regional conference of the Aviation-Space Writers Association last week in Albuquerque. Abbott is base manager for GD/Fort Worth at Air Force Special Weapons Center, Kirtland AFB, Albuquerque, N. M.

To summarize results of an extensive five-year B-58 bomb test program, Abbott spoke on "Mating the B-58 Supersonic Bomber to Nuclear Weapons."

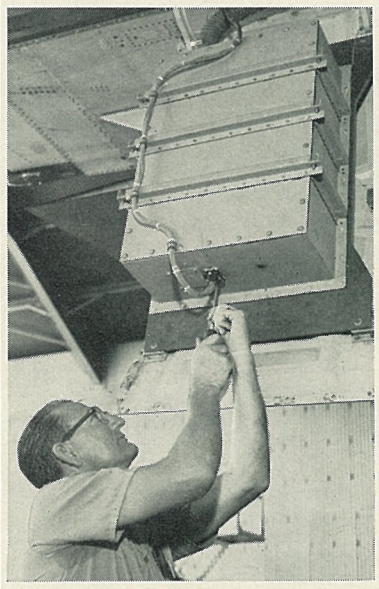
Abbott explained to the aviation-space writers that need for the B-58's electronic cowbell became evident early in the bomb-test program.

"Our radar operators—among the best in the nation and using the best equipment in existence—knew to the second when the B-58 would make its run. They knew its course. And they knew its altitude. But they found it virtually impossible to spot and track the B-58—except by accident," said Abbott.

"The almost indiscernible image the B-58 makes on ground radar is caused by the altitude from which the B-58 can bomb accurately (over 60,000 feet), and the speed of the B-58 (more than Mach 2)."

Once ground radar stations got an assist from B-58 crews intentionally signaling their position and course, however, the radar units found that the Hustler was scoring an impressive number of simulated drops "right in the pickle barrel," Abbott said.

"This B-58 high-altitude bombing is something like firing a rifle at a car's tail-light a mile away—while riding in a car traveling 100 miles an hour—and putting out the tail-light," Abbott added. "But the B-58's bombing-navigation system does exactly that—and more."



FIX—W. E. Jones, Dept. 64, installs "cowbell," which makes Hustler easier to detect on ground radar screens during simulated bomb drops over Kirtland AFB.

GD/Convair Man's Article on Flight Training Published

An article by P. H. Selby, GD/Convair flight training supervisor, on "Programming Auto-Instructional Training Materials for Flight Crews," appeared in the October issue of the Journal of the American Society of Training Directors.

The article describes the value of programmed learning-techniques for flight crews and the evolution and preliminary results of programmed instruction application specifically for jet transport flight instrument training.

Selby has been responsible for compilation of instruction for pilots on the Kollsman Integrated Flight Instrument System (KIFIS), in programmed format.

Test results of the second revised edition, printed in June, show that average time required to complete the program is approximately 42 per cent less than that needed for lecture presentation of the same subject matter. Final grade average of 92 per cent remained constant for both conventional method and programmed instruction.

"However, most encouraging factor is the interest and enthusiasm displayed by pilots for this new method of learning," remarked Selby. "They find it stimulating and rewarding."

Garrison Elected Section Secretary

J. W. "Jack" Garrison, chief safety engineer at General Dynamics/Astronautics, has been named secretary of the Aerospace Section, National Safety Council.

As secretary, Garrison will also serve on the section's executive committee for the coming year.

Last year Garrison served as membership chairman for this group.

He was among delegates attending the National Safety Congress last week in Chicago.

Val Dez Appointed Statistics Chairman

M. C. Val Dez, GD/Convair senior safety engineer, has been named statistics and contest chairman in the Aerospace Section of the National Safety Council, according to an announcement made at the Chicago executive committee meeting late last month.

During the last 10 years Val Dez has held several other executive committee posts.

SWISSAIR NAMES NEW TECH REP

Harry G. Liljeblad has been named Swissair's technical representative on the West Coast, with headquarters at General Dynamics/Convair, upon the recent resignation of H. P. Schulthess.

He had served as assistant representative during the year-and-a-half Swissair has maintained a customer representative's office at San Diego. Schulthess, who was responsible for coordination throughout development of Swissair's version of the Convair 990, is joining an American firm and plans to remain in the United States.

In other shifts within the Swissair office, Willi Kuschernsohn has been transferred from the airline's Zurich headquarters to assist Liljeblad.

Williams to Chair EIA Sub-Committee

H. P. Williams, value control manager at General Dynamics/Convair, received word late last month that he has been named chairman of the sub-committee "Mathematical Models for Design Evaluation" of the Electronic Industries Association.

Appointment was made by R. Gillespie of Sylvania Electronic Systems, who heads Measurements and Standards committee of the national organization.

Material Research Chief Is Speaker

Abe Hurlich, chief of GD/Astronautics material research group (Dept. 592-1), presented two papers at World Metal Show, New York City, late last month.

They were "Considerations in Choosing a Research Project," and the keynote address of a symposium on "Role of Non-Ferrous Metals in Aerospace Applications."

'Friendship 7' Honors Grow

Still another honor was added recently to those earned by the film "Friendship 7," produced by General Dynamics/Astronautics motion pictures and television (Dept. 124) for National Aeronautics and Space Administration.

The film was judged best in the public relations and sales division of a competition sponsored by Industrial Photography magazine.

The movie, documenting Astronaut John Glenn's orbital flight, was previously honored with the Monza trophy at International Film Festival, Milan, Italy; as the all-Italy best television news show of the year; and with the United Arab Republic best television award in Cairo, Egypt.

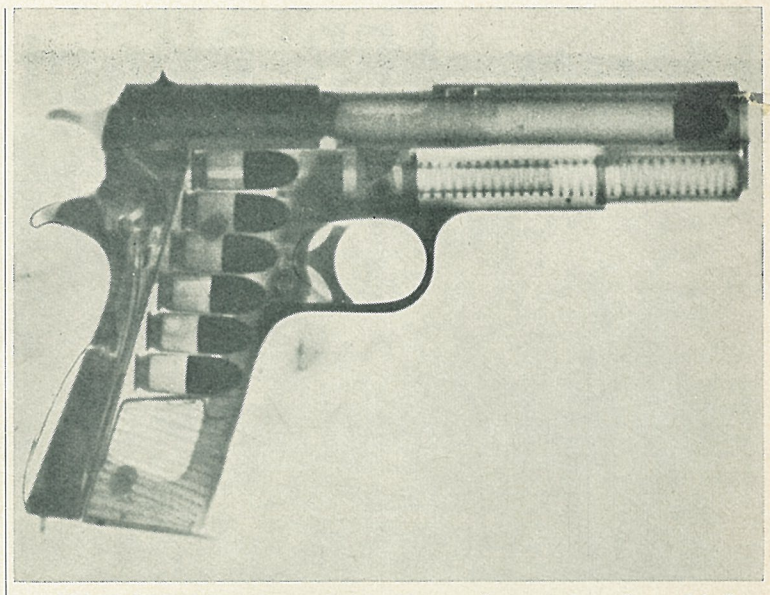
The film is a finalist in the forthcoming San Francisco Film Festival competition.

Accepting the most recent award in Chicago was Eugene C. Keefer, the film's executive producer. John Hynd was director; Frank Kerr, script writer; and Bruce Herschensohn, editor.

Experimental Plane President to Talk

Floyd Blair of GD/Fort Worth Dept. 6, local president of the Experimental Aircraft Association, will speak to members of Society of Automotive Engineers Nov. 9 at Amon Carter Field. Social hour starts at 6:30 p.m.

Title of his talk will be "Putting Fun Back into Flying." Reservations may be made through Dave Norton, ext. 3811.



BULLET STOPPER—Remarkable X-ray photo, taken from 12 feet distance, "stops" .45 caliber bullet as it is about to leave barrel. GD/Fort Worth will use flash X-ray system as radiation source in studies of nuclear effects.

High Speed Flash X-Ray System Will Be Used in Radiation Study

What transient effects will an atomic explosion have on missiles, airplanes, and other sophisticated weaponry?

GD/Fort Worth engineers soon will be finding the answers with a new flash X-ray system being installed in a "portable" concrete building as part of the division's Nuclear Aerospace Research Facility.

"This new system definitely gives GD/FW a new experimental capability in transient nuclear effects, enabling us to take on new assignments in this rapidly developing area," said H. R. Dvorak, GD/FW chief of nuclear research and development.

"We know that an atomic explosion creates high intensity gamma rays with damaging effects far beyond the blast," said William L. Fink, senior nuclear engineer.

"These gamma rays change the electrical characteristics of electronic systems they come in contact with, particularly sensitive parts such as transistors, capacitors, and resistors."

GD/FW nuclear engineers now have the capability of discovering the nature and extent of gamma-ray damage.

Radiation source will be a flash X-ray system—one of the few in operation in this country—which delivers single pulses of high-energy x-radiation.

Radiation intensities can be created as high as one-hundred million Roentgens per second, while the pulse rate is delivered in about one-tenth millionth of a second!

Peak radiation energy is three-fourths of a million electron volts.

"Besides the studies of transient radiation effects in electronic systems, the device can be used to perform biological radiation rate studies and high-speed radiography work," Fink said.

"The device is ideal for X-ray photography of high-speed moving parts and should have many useful applications at GD/FW in addition to radiation effects uses."

The new facility, a pre-fabricated concrete shielding wall designed by GD/FW plant engineering, is being installed in the Nuclear Manufacturing Building (Bldg. 125) of Nuclear Area 2.

Interlocking wall sections are assembled, and precast concrete ceiling sections are fitted into place. Doors are sandwich construction of plywood and lead sheeting.

"Nuclear shielding for this facility is simplified," Fink said, "since no radioactivity or nuclear contamination is possible from an X-ray source.

"This allows use of lap joints on prefabricated sections rather than solid concrete walls. With this type of construction, the facility can be moved, expanded, or modified at modest expense and in minimum time."

Eight Dynamics Clubs Registered at Buffalo

Two major trophies were taken home by members of the GD/Fort Worth Management Club from the National Convention of the National Management Association.

For the fourth year in a row that club was selected as the No. 1 company Management Club in the nation. The club also received a trophy for providing its members with the greatest opportunity to advance in management skills and for doing the most to improve management as a profession. The latter trophy has been sponsored by GD/Fort Worth since 1953, but this is the first year the club has won its own trophy.

Club President Miles R. Rogers received the awards from NMA President L. Fred Magruder during the convention in Buffalo Oct. 24-26.

Robert Poole, chief of materiel at GD/Astronautics at Cape Canaveral, Fla., was selected for the second highest office in NMA, being elected first vice president.

Members of eight clubs from within General Dynamics Corporation, including the new one at GD/Electronics-Rochester, were present to witness presentation of the trophies. Registering were:

GD/Astro, Cape Canaveral—Bob Poole, Bob Flanagan.

GD/Astro, San Diego—Jerry Janda, Ed Russell, Ralph Bauman, Tom McCubbin, Bob Craig, Al Gillette.

GD/Astro, Edwards AFB—L. M. Barnes.

GD/Astro, Vandenberg AFB—Augie Daddi.

GD/Convair—Al Fink, Harry Lund, Larry Sweeney, Paul Hamm, Ralph Montgomery, Joe Freeman.

GD/Electronics, Rochester—Howard Mills, Ted Peck, Dave Verdery, Paul Neuman, Bruce Fyfe.

GD/Fort Worth—Miles Rogers, John Watson, Larry Armstrong, John Keller, Bryant Justice, Bill Parks, George Boesch, Rand Creasy.

GD/Pomona—Roy Williams, Tom Moffett, Frank Mentlick.

The men from these divisions gathered a half day early to visit the old Consolidated Aircraft plant. This plant was established in Buffalo in 1924 and was the forerunner of several divisions of General Dynamics. The building is now occupied by the U. S. Government's General Services Administration.

STEP INTO PAST—Members of several General Dynamics Management Clubs inspect old Consolidated Aircraft plant in Buffalo. Plant was forerunner of several divisions of corporation. October 24 visit was arranged as prelude to program at NMA convention.

Material Handling Report Commended

B. J. Handwerker, GD/Convair materials handling engineer, has been commended for his materials handling presentation early this summer at the Navy's Bureau of Supplies and Accounts Workshop Seminar held at the Naval Supply Depot Center, San Diego.

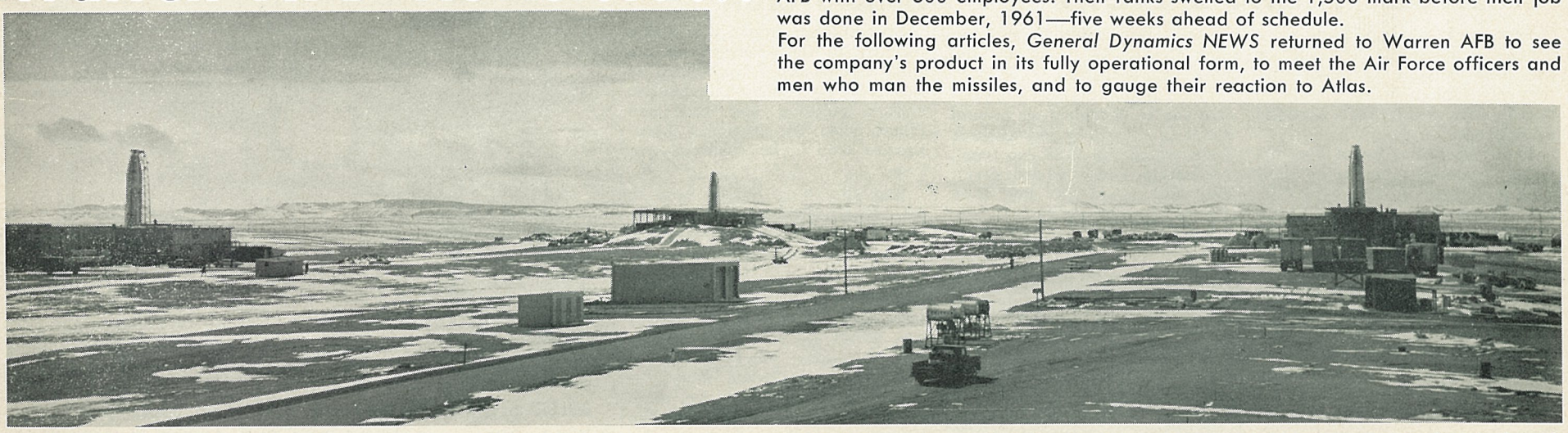
R. E. Beach, president of the National Security Industrial Association, Washington, D. C., in a letter to GD/Convair President J. H. Famme, said that the paper on industry's most current materials handling practices and procedures was "enthusiastically received by military and civilian supervisors and technicians."

Warren AFB Revisited...

In early 1959 General Dynamics/Astronautics employees poured into Cheyenne, Wyo., to begin activation of SAC's first purely operational Atlas ICBM base.

By the end of the first year, a division-in-miniature had been created at Warren AFB with over 600 employees. Their ranks swelled to the 1,500 mark before their job was done in December, 1961—five weeks ahead of schedule.

For the following articles, *General Dynamics NEWS* returned to Warren AFB to see the company's product in its fully operational form, to meet the Air Force officers and men who man the missiles, and to gauge their reaction to Atlas.



BUSINESS END—Photo taken during activation of Atlas launch site (missiles are erect but lack warheads) shows lonely prairie country where they stand guard. Missiles are normally in horizontal position, under cover, except when in launch drill. Sites that circle Warren AFB are from 23 to 90 miles distant.

Atlas Sites Ring Cheyenne

"A great moral force is a bayonet and a web belt full of cartridges," wrote Col. John S. Poland, commanding the 17th Infantry at the then-Fort D. A. Russell in 1890.

Today, some 70 years later, Ft. Russell has become Warren AFB and missiles have replaced bayonets, but Poland's words still ring true.

Over the years, Cheyenne, Wyo., once near neighbor of Ft. Russell, has expanded until its northern limits now brush the southern boundary of renamed F. E. Warren AFB.

Located in the extreme southeast corner of the state, city and base are a scant 10 miles from Colorado, and roughly 40 miles from the Nebraska line.

Around Warren AFB at distances from 23 to over 90 miles are flung the Atlas launch sites known collectively as Warren I, II, and III. Sites of Warren I and II, although differing slightly in configuration, form a circle of roughly 25-mile radius about the main base.

Warren III is composed of all-inertial-guidance Atlas "E" missiles stored in semi-hard horizontal launchers. Its sites are spotted in an irregular semi-circle, still further from Cheyenne, with some spilling over into Colorado and Nebraska.

'We Are Ready Now. We've Been Ready For Two Years,' Says Launch CO

BY WILLARD HARWOOD
General Dynamics NEWS Staff

WARREN AFB — Within a heavily guarded enclosure at the eastern base of the Rockies, a high-pitched electronic tone whines over a sprinkling of squat concrete buildings.

In seconds, technicians drop into seats before sleek gray consoles in one of the buildings. Closed circuit television screens flicker to life, and lights flash green on status boards along the walls.

At a raised console behind the technicians, a loaded .45 automatic at his hip, is their "boss." Calmly he speaks into the telephone headset linking him with his men.

From a loud speaker a voice recites a jumble of letters in military phonetic alphabet. A junior officer works furiously at a code book to learn their meaining.

As it has on so many other days like this, a question hovers in the room: Are they about to answer the nuclear challenge of an enemy a continent away? Or will the coded message signal another of the rigorous training sessions with which they have become so familiar?

These men in their white coveralls, some wearing blue baseball caps, are members of Strategic Air Command's 389th Strategic Missile Wing, Warren AFB, Wyoming. For over two years this wing, now armed with 24 Atlas ICBMs, has stood at the ready at SAC's first purely operational missile base.

For some three years previous, nearly 1,500 General Dynamics/Astronautics employees and more than 2,000 subcontractor personnel labored at Warren AFB to help create the massive deterrent force now accumulated here.

The final cluster of Atlas installations (Warren III) became operational Dec. 12, 1961. In one of the Launch Operations Buildings (LOB) at pioneering Warren I, where the scene described above takes place daily, men of the 564th Strategic Missile Squadron have been on 'round-the-clock duty since Aug. 30, 1960.

Theirs are neither the newest nor most impressive facilities in the Air Force arsenal. (Warren I has six radio guidance Atlas "D" missiles in "soft" above-ground launchers.)

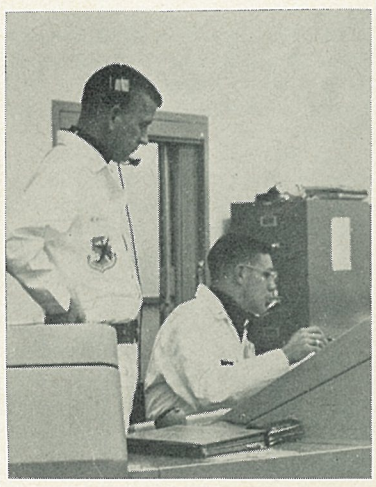
But two years' experience with their "birds" has given the men of the 564th an unshakable confidence in their weapon. Many have taken part in an actual launching at Vandenberg AFB, Calif.

Major Francis E. Henderson, commanding one of five SAC combat crews who man Site "A" on a relay basis, speaks for them all: "There is no doubt that Atlas could effectively perform its mission."

Henderson has a crew of 12 airmen, plus a junior officer who is his deputy crew commander.

"We are ready now," he elaborated. "We have been ready for two years. The new missiles—Atlas "F," Titan and Minuteman — are wonderful. But we are ready now."

Each launch crew stands 24-hour duty days at the site, averaging 72 hours a week. Between site tours and off-duty time are sandwiched training sessions and 24-hour stand-by periods. Also supporting the sites are men of the 389th Missile Maintenance Squadron who work a more usual five-day week.



IN CHARGE — Major F. E. Henderson, combat crew commander, watches intently as deputy crew commander carries out alert procedures.

For a launch crew, a duty day starts at 7 a.m. with a briefing at squadron headquarters. Then comes a bus ride from Warren AFB to the site where they remain on station until relieved the following day.

Depending on site location, the bus trip may cover from 25 to 90 miles one way. And, as a hedge against temporary isolation as result of blizzards which sometimes bluster across the plains without warning, buses are stocked in winter months with provisions and blankets.

At the site, working hours follow a pattern of study, maintenance, on-the-job training — and waiting for the alert which will send them to battle stations.

The alert may catch them while relieving the previous day's crew in the morning. Or while they are enjoying a steak in the guidance building mess hall nearby (a waiting personnel carrier speeds them back to their stations).

Or it may come after taps to jerk them awake in the small LOB dormitory adjacent to the control center.

When the alarm sounds, the guidance building, as well as the LOB, stirs with action. An officer and three airmen—the guidance crew—take their places as the guidance officer prepares the highly classified target program for his computers.

In each of three launch service buildings controlled by each LOB is an Atlas, ready to swing erect as the building's heavy roof rolls clear. If the "Go Code" comes, the missile is ready to hurtle over 6,000 miles at some 16,000 mph.

Major Henderson's respect for his crew runs high. "These men are professionals and they know what's expected of them," he said.

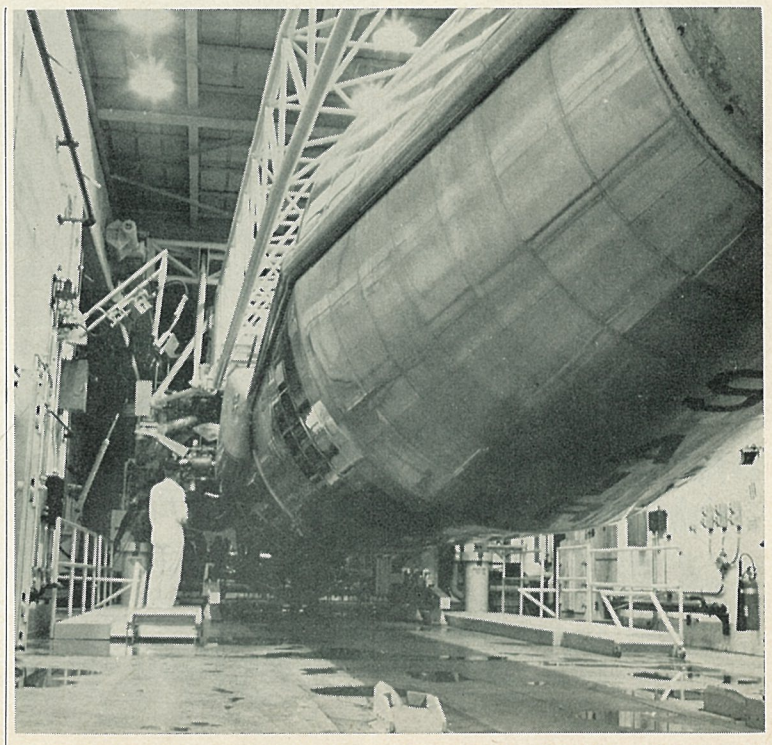
A composite picture of these "pros" shows a veteran of 8 to 10 years' Air Force service; in his early 30s; married.

He is a volunteer: a missile specialist who more likely than not can pinch-hit for nearly any other member of his crew without missing a cue. He is a high school graduate, and may have a few college courses behind him. He will have attended at least one, and probably more, Air Force schools.

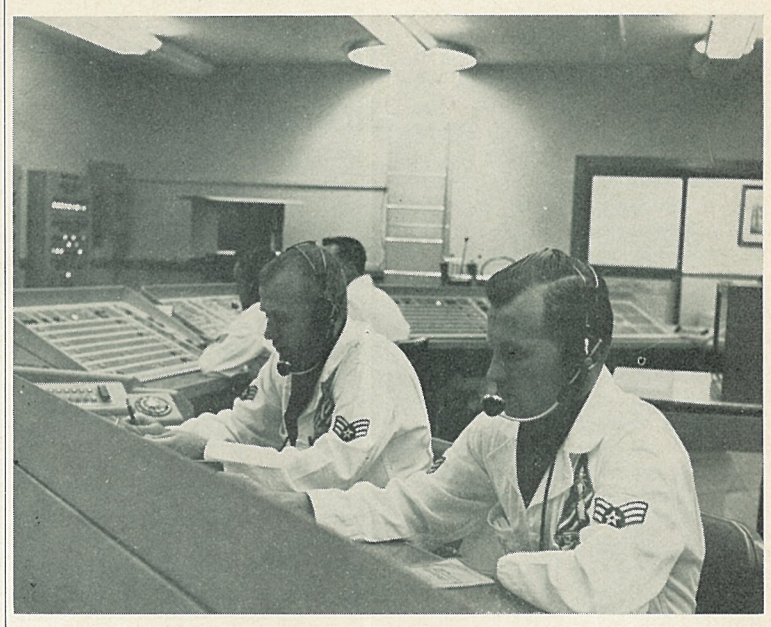
He likes his work and is proud of it. As the major explained, "We have an operational attitude."

Underlying the work and devotion of the men of the 564th, like their counterparts at Warren II and III (565th and 566th SMS, respectively) is a strange contradiction:

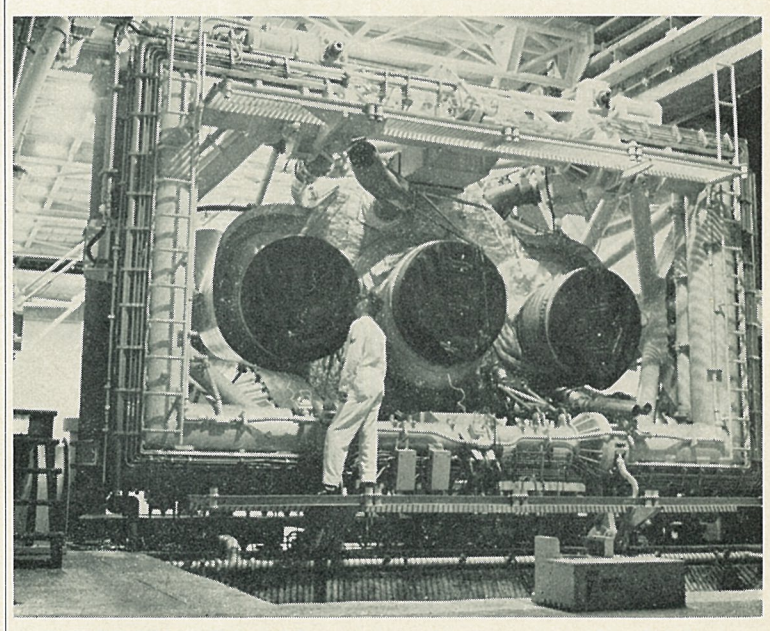
Their very skill and preparedness could make it unlikely that any missile will ever be fired from this plain at the foot of the Rockies.



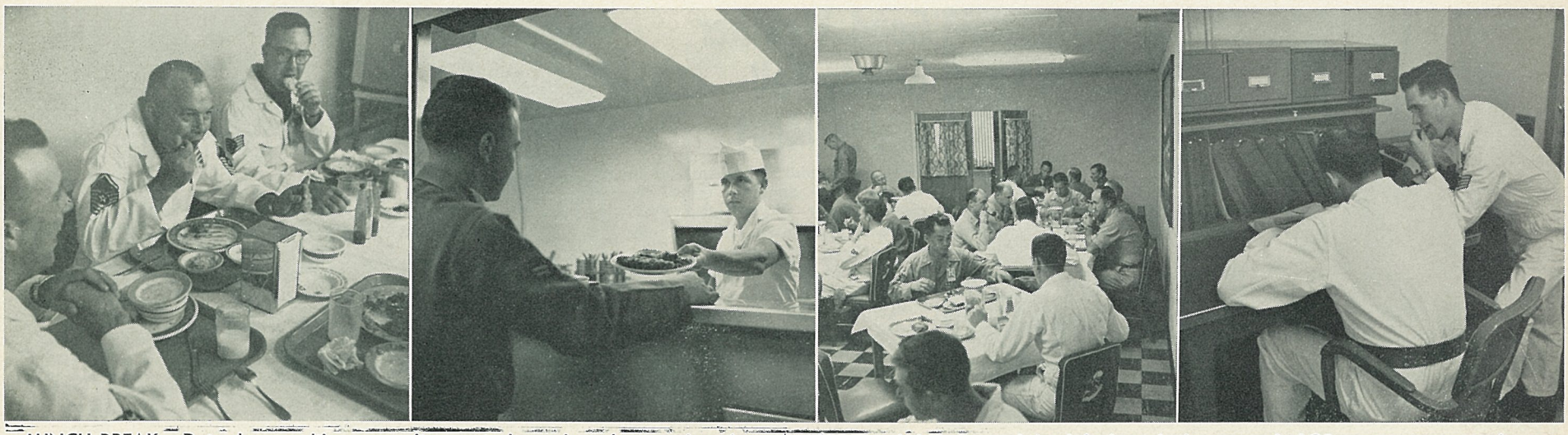
AT REST—Massive tank of operational Atlas ICBM in "horizontal launcher" is inspected by Strategic Air Command missileman. On command, heavy roof rolls aside and missile swings erect, ready for launching in minutes.



TENSE MOMENT—Intent on instrument consoles before them, SAC combat crewmen run through daily surprise alert, not knowing until procedures are well under way whether preparations will end as drill or operational launch.



INSPECTION—Trio of booster engines on operational Atlas are checked by SAC crewman. Intensive training, maintenance and study keep crews needle-sharp and alert.



LUNCH BREAK—Duty day mealtimes permit crew to leave launch control stations briefly. Officers, however, must remain constantly on posts; dine on "foil packs" (like TV dinners). Guidance building mess hall serves 200 daily, frequently more when steak is on menu! At right is typical moment in LOB as crewmen ponder correspondence course. Training, on job, in classrooms or by correspondence, offers airmen self-improvement and opportunity for professional advancement.

SHADED AVENUE—Rows of cottonwoods front red brick barracks buildings at Warren AFB. White-trimmed buildings rimming broad drill field opposite give campus-like atmosphere to Wyoming base.

Hard Core of Mature Officers Holds Key Atlas Commands

Warren AFB is an Air Force base without an airfield, an historic cavalry post whose officers and men have traded air-crew wings for the rectangular badges of Strategic Air Command missilemen.

Atlas, vanguard of the new generation of airpower instruments, is tended by men of remarkable maturity. Except superficially, its officers bear little resemblance to the dare-devils who flew with Jimmy Doolittle, or challenged Messerschmidts over Hamburg.

They remember the "old days" of less than two decades ago, but have moved on to keep pace with changing missions of their service.

Brig. Gen. W. S. Rader, commanding the 13th Air Division here, will recall over 18 hours in a life jacket awaiting rescue from the Pacific after a heavily opposed B-17 mission.

The knowledgeable will note the Distinguished Flying Cross with cluster among decorations of both Col. George T. Chadwell, 389th Strategic Missile Wing commander, and Col. E. B. Daily, base commander.

Among officers commanding Atlas missile sites here are many who earned command wings in B-47s or B-52s.

Former pilot, Major Francis Henderson, "head man" of a crew at Atlas Site "A," left an intelligence assignment at SAC Headquarters to volunteer for missile duty, motivated, he says, by the added command challenge in the new field.

Junior officers, serving apprenticeships as deputy crew commanders or guidance officers, represent a "new generation" in the Air Force. They come to their jobs, heady with science and engineering degrees from West Point and Annapolis, M.I.T. and Stanford.

"They set quite a pace for us in the classroom," said Henderson.

Brig. Gen. W. S. Rader, commander, 13th Air Division.

Col. G. T. Chadwell, left, 389th Strategic Missile Wing commander, and Col. E. B. Daily, Warren AFB commander.

Typical of these "pace setters" is guidance officer, J. R. Wade.

Chicago-born and a West Point grad, this first lieutenant contrasts his seniors' attitudes by citing opportunity for specialization as the Air Force's strongest lure.

And the sergeants and airmen behind the Atlas are no "Johnnys-come-lately." Re-enlistments are "old hat" with many having backgrounds in manned aircraft.

They notice a difference.

"This is not like aircraft where you can watch a plane lift off on a mission and know you've done a good job," said one eight-year veteran.

The substitute reward is the occasional launch of an Atlas from Vandenberg AFB to climax an intensive, periodic training visit there. Add to this constant self-reassurance through study—correspondence courses and on-the-job training. (One senior master sergeant ran out of fingers while counting his Air Force schools.)

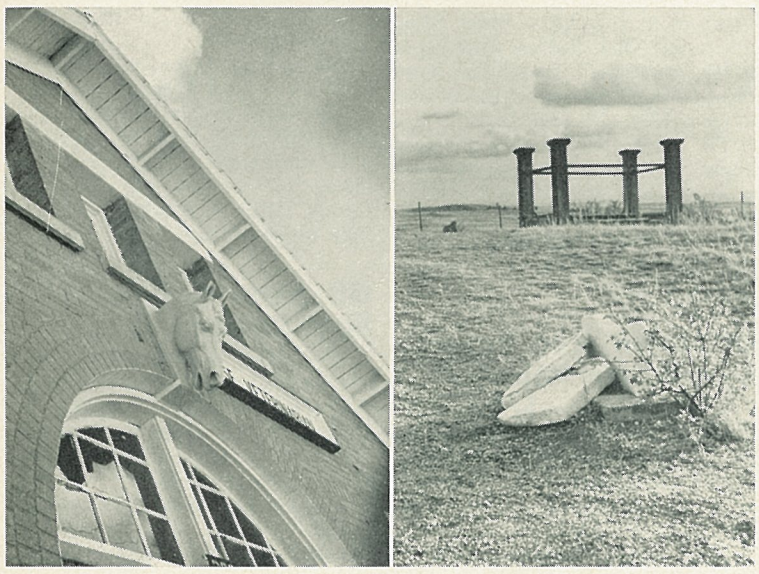
Other compensations of missile duty are many.

Family men (and Maj. Henderson's 14-man team includes only two bachelors) become participating members of the Cheyenne community with an assured four years without reassignment.

There is ample leave with the annual 30 days split into two periods of 10 and 20 days respectively. (Dates are drawn from a hat, since the whole crew takes leave at once.)

Breaches of discipline, often born of changeless routine and boredom in other service situations, are almost nonexistent here.

"We have had none with this crew," said Major Henderson, and then backed off a bit. "Well, one of the boys got a traffic ticket the other day."



RELICS—Though Warren AFB's horse population is nothing like it was in old cavalry post's heyday, veterinarian is still in business. Horse's head marks his office door. At right is forgotten grave and broken headstone, symbolic of lonely countryside where Atlas missiles wait.

Security Serious Matter at Sites

"NO TRESPASSING — SURVIVORS WILL BE PROSECUTED."

With his second reading of this sign posted, half-humorously, in the gate house at one of several Atlas ICBM launch sites ringing Warren AFB, the visitor gets the idea.

Here, as at other Strategic Air Command facilities, security is serious business.

The concept was impressed upon him before the visitor entered the gate house. He has good reason to be there, and an appropriate security clearance — or he wouldn't have come this far.

For at the sites, the welcome is far different than the greeting of the Air Policeman, smart in his blue uniform, who meets visitors at Warren AFB's main gate.

Instead of tree-lined streets and neat rows of colonnaded brick buildings for a backdrop, the site entrance is barred by a 20-foot gate topped with barbed wire.

His "host" is dressed in olive-drab fatigues, a yellow scarf at his throat, and business-like automatic weighting his khaki web belt. The visitor has met a member of the elite Combat Defense Force.

SAC's 389th Combat Defense Squadron is charged with security at Warren AFB. For the most part, CDF troops spend their on-duty hours within or near fenced enclosures of areas housing missiles, their warheads, or other "high sensitivity" equipment.

Carbine-armed foot patrols prowl constantly through the confines of Atlas launch sites; organized Mobile Strike Teams (MST) cruise site perimeters; while a Roving MST in constant radio contact with its headquarters is likely to appear anywhere at any time.

These are the men on whom the security-conscious officers and airmen of Warren AFB may call at any time they suspect the massive deterrent force they control has been violated.

Every airman is a one-man security squad, and, in a restricted area, our visitor may be stopped a dozen times in a walk of as many yards, should the reason for his presence be questioned.

If he doesn't have the "right" answers, he will be detained (if his answers are close) until his credentials have been inspected by a CDF unit—which appears out of nowhere.

Should his challenger interpret his presence as a threat, the code words "Seven High" will be passed.

This phrase signals a potential emergency, and crack CDF troops, weapons at the ready, engulf the area.

Reason for the alert may be a visitor without proper credentials. It may be a few wires of a missile assembly disconnected or out of place. No reason is too small, no possibility too remote.

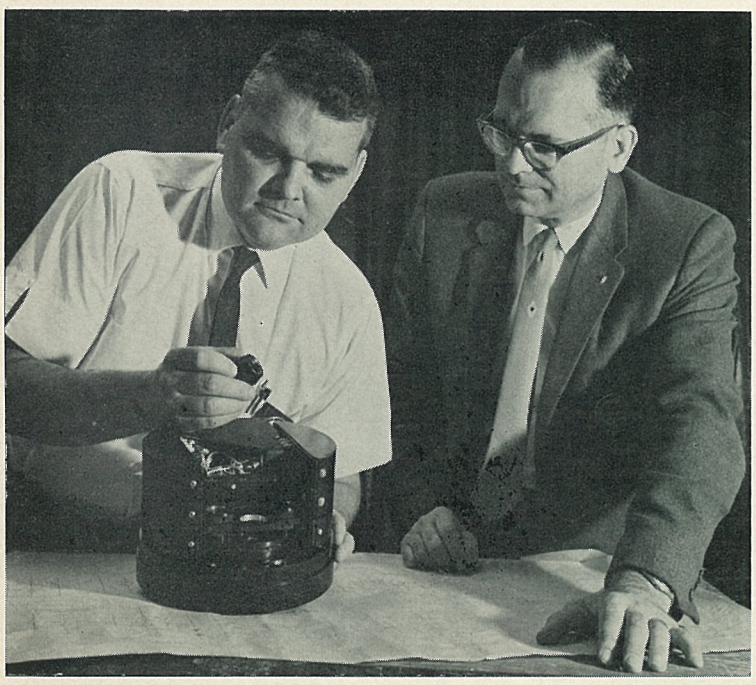
At one site an officer "pressed the button" when he noticed a bottle filled with an unidentified liquid where no bottle should be: on the floor where an opening door would upset it.

Within moments after "Seven High" was sounded, CDF troops ringed the building. A crew removed the suspect item.

There were only sighs of relief, no embarrassment, when the liquid turned out to be water. It might have been nitroglycerine.

Warren AFB's Combat Defense Force intends to see that all their calls are "false alarms."

PRESENT ARMS—Rigid inspections of Combat Defense Force guards are held four times daily and keep crack security unit in top form. Here Lt. Col. W. E. Steger, deputy base commander, questions CDF airman. After dismissal, troops disperse to posts.



READY FOR DELIVERY—George Carmichael, GD/Astro senior electronics engineer, and Romuald Anthony, research group engineer, examine first radiometer unit completed by infrared/optics technology group for plume radiation measurement.

New Radiometer to Measure Radiation From Clouds, Gases

First three-channel radiometer, designed and fabricated in GD/Astronautics infrared/optics technology group, based at Plant 1, has just been turned over to Astro's space science laboratory as one of several packages for measurement of "plume radiation."

Contract calls for development of six such radiometers to be delivered before the end of the year for use in the FLIP (Flight Infrared Probe) program.

According to Romuald Anthony, Dept. 500 research group engineer in charge of infrared/optics activities, the radiometers are designed for measurement of radiation emitted from such sources as clouds, earth's atmosphere, rocket plume—gases ejected from missiles in flight.

The scientific instrumentation package, composed of optical components such as infrared lenses, ultraviolet lenses and detectors, and compact electronics, is developed for use under extreme environmental conditions associated with high rocket acceleration and space environments.

The first unit is, in effect, a laboratory mockup, prototype, and deliverable unit, all in first attempt. Its completion culminates several months of concentrated effort within the infrared/optics technology group since predesign was begun in June under direction of Robert Condon, senior research engineer.

Task leader for the project is George Carmichael, senior electronics engineer. The infrared/optics group is a section of the Astro applied research laboratory under V. A. Babits, manager.

"This project is but a part of our continuing and expanding technological efforts to provide advanced instrumentation and sensors for payloads in rocket probes for scientific and military purposes," said Anthony. "This field is only a slight departure from our research in the infrared atmospheric geophysics probe area, with first flight completed last year."

Other developments chalked up by the infrared/optics group over the last two-and-a-half years, besides the current radiometer program, include the Schlieren optical camera used at Ames Research Center, Calif.; two lead sulphide radiometers for Tullahoma Facilities, Tenn.; three vertical probe horizon scanning radiometers, two still to be fired early next year; an advanced infrared surveillance sensor for a satellite weapon system. Total contract effort amounts, so far, to over $750,000.

Photos Tell Rally Route

More than 6,000 miles have been driven by members of ARA Sports Car Club in preparing for their unique Photorama Rally IV, slated for Nov. 25.

Designed for beginner and expert alike, Photorama uses photographs of intersections and road signs to guide participants over a 3½-hour, 100-mile course. Even speed changes are indicated photographically, by picturing inset speedometers in applicable photos.

Rallymaster George Lahey has announced that the course is fully paved, and the route selected for scenic attractions. It was scouted by Jim Howard and Ed Yeaton, and instructions were photographed by Jack Stevens.

First car will get under way from the ARA Area at 11:31 a.m. A half-hour rest stop en route is planned, and the finish line is at Singing Hills Country Club, El Cajon.

Lahey has emphasized that all licensed drivers are eligible to enter, whether they drive the latest in foreign cars or simply the family sedan. General Dynamics folk will receive special welcome. The rally is a San Diego Council of Sports Car Clubs open event.

Pre-entries are handled by Dale Stephens, and details on the rally are available from Lahey, ext. 2780; club president Jim McRae, ext. 4251; or ARA Commissioner Judge Penick, ext. 3162.

Entry blanks are available at ARA Headquarters, or from Ken Partain, ext. 4517.

Holloman Reunion Planned at Picnic

Former Holloman Field employees have been invited to attend a potluck picnic in ARA Recreation Area (east of General Dynamics/Astronautics) at 1 p.m., Nov. 11.

Additional information is available from J. D. Darsey, 442-7357; Art Carpenter, 442-5638; or Dwight Stone, 278-9358.

NASA Quality Control Program Subject of San Diego Society

National Aeronautics and Space Administration's quality control program will be outlined for San Diego members of the local section of American Society for Quality Control at the Nov. 12 meeting.

Howard N. Weiss, chief of quality assurance, Office of Reliability and Quality Assurance, NASA headquarters in Washington, D. C., will be guest speaker, according to P. I. Harr, director of reliability control at GD/Astronautics, in charge of arrangements.

The 6:30 p.m. dinner meeting will be at Vacation Village, Mission Bay.

General Dynamics people may obtain tickets from Omar Scarborough, ext. 663; Kent Sinclair, ext. 2212, both Plant 1; Fred Lay, ext. 2057, Plant 2; at the Astro main site from George Huff, ext. 2997; J. F. Baebler, ext. 639; J. S. Ortega, ext. 4168 .

Good Weather Greets Fall Glider Meet

Sixteen glider pilots competed in the Fall Soaring meet co-sponsored by CRA Glider Club and the Associated Glider Clubs of Southern California, Ltd., the weekend of Oct. 27-28 at Elsinore's Skylark Field.

"The weather was clear and warm, perfect for sailplane flying," said CRA Commissioner Gene Whigham. "Thermals provided altitudes of as much as 10,000 feet."

First place in the Saturday event went to George Tweed, who completed a 144-mile flight from Skylark to Ramona Bowl, Jack Rabbit Pass, and on to Brawley. He flew his own designed and built GT-1 sailplane.

James McCarrier, flying his home-built Cherokee sailplane, came in second and John Williams was third with a 107½-mile flight in a modified Schweizer 1-23.

Sterling Starr of GD/Astro was only pilot to complete Sunday's task over a triangle flight from Skylark Field to Hemet to Toro Peak and return, a distance of 119 miles. Starr flew a Schweizer 1-23F.

In second spot was Jack Green with a distance of 50 miles in a GT-1. Evan Stover, flying a Schweizer 1-23H, was third with 44½ miles.

Cy and Florence Perkins, operators of Skylark Field, hosted the Saturday evening dinner.

Linguists Plan Tijuana Tour

A luxury "South of the Border" tour is on tap for all members of the ARA-CRA-sponsored Spanish courses, held this summer, announces Jim Hardison, instructor.

The specially-arranged trip on Saturday (Nov. 17) to Tijuana will show San Diegans highlights of the Mexican city not usually seen by tourists, explained Hardison.

During the 12-hour jaunt, the former Spanish students and their friends will see such points of interest as theaters, money exchange center, post office, National Lottery, Cathedral of Guadalupe, a tortilla factory, and the exclusive residential district.

Dinner, with special entertainment, will be at the Country Club, followed by a stop at the Fronton Palace to watch jai alai. The evening will be climaxed by a visit to the Flamingo Club where a Mexico City nightclub troupe is appearing.

Entire cost of the tour, including dinner, transportation, all admission charges, is $11 each.

Buses will leave the Conference Bldg. in Balboa Park at 1 p.m. for the border where a chartered bus will be waiting to continue the sightseeing on the Mexican side.

Reservations must be made by next Monday (Nov. 12) by calling Evelyn Soule at Astro's Kearny Mesa plant, ext. 2435, or at her home phone after 6 p.m., 278-4537.

Humorous Speech Course Starting

Mt. Helix Toastmasters Club No. 126 will sponsor a three-session humorous speech training course at Lawton's Chuck Wagon, 8090 University Ave., La Mesa. First session is at 6:10 p.m. tonight (Nov. 7).

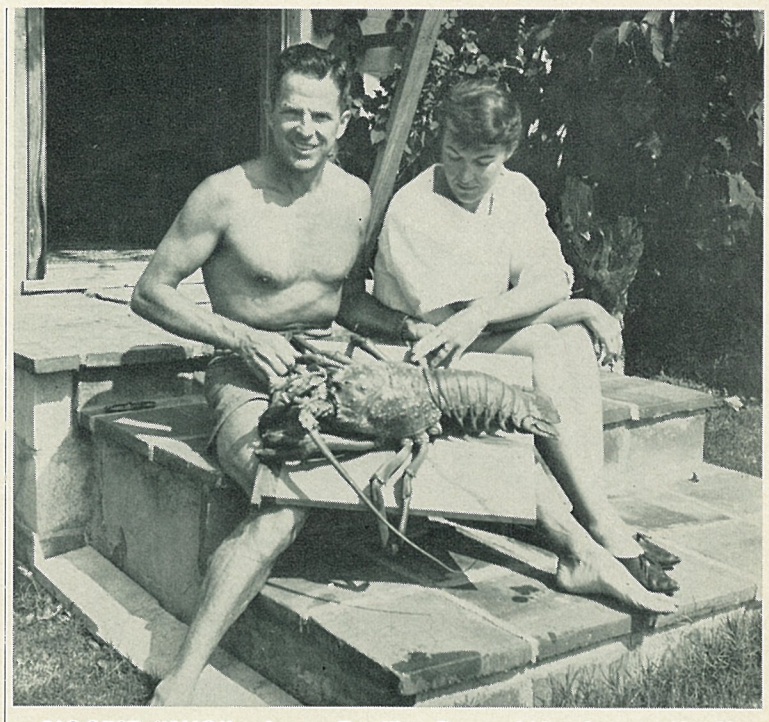
General Dynamics men in the club include President Seymour Zeenkov, Ken Cummins, Jack Fisher, Jim Johnson, Chuck Plummer and Glenn Vail. More information is available from Johnson at ext. 4573, GD/Astro main plant.

Salvage Schedule

Salvage yard schedule for the next four weeks:

GD/Convair—Nov. 10, Nov. 24.

GD/Astro—Nov. 17, Dec. 1.



BIGGEST "BUG"—Jorge Zorrilla, Dept. 661, shows wife Shirleen (Dept. 521), 13-lb. lobster he took on Astro Divers' recent trip to San Clemente Island. "Bug" was largest taken on season's opening day.

CURTIS L. BATES DIES SUDDENLY

Funeral services for Curtis L. Bates, assistant program director for scientific passenger pods at GD/Astronautics, were held Oct. 31 in San Diego.

Bates died suddenly Oct. 28.

With Astronautics for the past two years, Bates formerly worked at Ryan Aeronautical Co. He is survived by his widow, Alice; two sons, C. Allen and Marshall D.; and two grandchildren.

The family has suggested contributions in Bates' name to the General Memorial Fund, Scholarship Foundation, San Diego State College.

'Sock Hop' Planned In ARA Clubhouse

Another of ARA Teen Club's popular "sock hops" for GD/Astro teen-agers will be held from 7:30 to 11 p.m., Nov. 17, in ARA Clubhouse.

Commissioner John Hess has encouraged all attending to wear their "loudest" socks. Other appropriate dress might include Bermuda shorts for boys, and Bermudas or "knee-knockers" for girls.

Admission is 25 cents per person. Each member is welcome to bring a guest and one guest couple.

Turkeys to Reward Badminton Play

Two turkeys will be awarded on a handicap basis in an ARA badminton tournament to get under way at 1 p.m., Nov. 18, in the Federal Bldg., Balboa Park.

Two additional awards will go to top players. Entries are now being accepted at ARA Headquarters, ext. 1111.

Riding Area to See Weekend Activity

Two weekends of activity are in store at the ARA Area riding arena as ARA Riding Club hosts a Mission Valley Trailriders show Nov. 11 and follows with its own events Nov. 17 and 18.

The first feature is a western show, while the ARA group plans a gymkhana Nov. 17, and a western event the following day.

Additional information on Riding Club is available from Joanne Lee, ext. 2377.

GD/Astro Men Read Symposium Paper

A technical paper by Dr. Alfred H. Hausrath and Frank A. Dittoe of GD/Astronautics applied research laboratories was presented at a NASA symposium at Langley Field, Va., last month.

The paper, "Development of Design Strength Levels for the Elastic Stability of Monocoque Cones Under Axial Compression," reports findings resulting from a General Dynamics-sponsored research program.

Hi-Fi/Music Club Offers Concerts

Recorded concerts appealing to every musical taste have been scheduled for GD/Astro employees by ARA Hi-Fi/Music Club.

Free programs will be held each Friday at 7:30 p.m. in the club's studio in ARA Clubhouse.

On tap for Nov. 9 is a jazz program prepared by Dave Stovall. This will include Howard Brubeck's "Dialogue for Jazz Combo and Orchestra"; an interpretation of "West Side Story" by the Dave Brubeck quartet; and other selections.

A potpourri of Russian classical music will be presented Nov. 16 in a concert arranged by D. W. Grisel. Included will be works by Tchaikovsky, Rimsky-Korsakov, Shostakovich, and others.

Gardeners to Vote On New Officers

Reins to ARA Garden Club will change hands tonight (Nov. 7) when the group holds election of officers at its meeting at 7:30 p.m. in Floral Association Bldg., Balboa Park.

Following a recap of the chrysanthemum show held jointly with the CRA club Nov. 4, John Drisco of San Diego Fertilizer Co. will discuss and demonstrate soil analysis.

Free soil analysis will be run for those bringing a small envelope of soil to the meeting.

ARA Commissioner Everett Henderson has announced plans are under way for Garden Club's annual Christmas Party, slated Dec. 5 in ARA Clubhouse.

Archaeology Club Begins Excavation

ARA Archaeology Club has begun another excavation operation, this time at a site in Carlsbad. Located here is an ancient Indian dwelling believed to date from 4-6,000 B.C.

The group recently completed excavation at a Poway site.

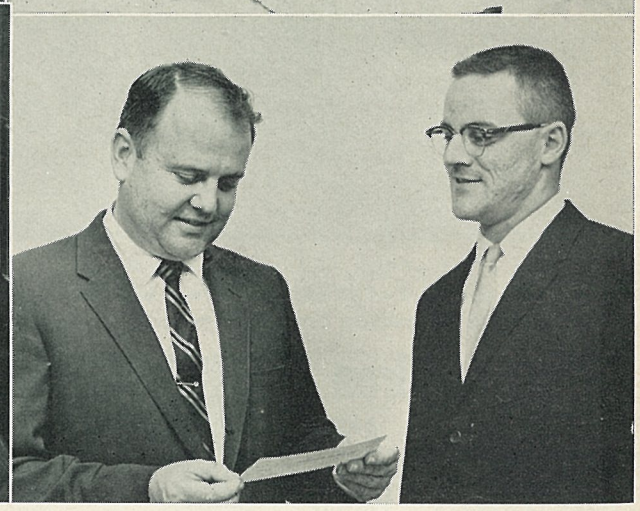
GD/Astro employees interested in archaeology and in assisting with the current "dig" have been asked to contact Commissioner Randy Miller, BR-3-9237, for further information.

GD/Astro Golfers Beat Pomona Team

GD/Astro golfers downed a Pomona team 88 to 56 in the recent interdivisional match at Circle "R." The contest echoed results of a meet earlier this year when Astro won 88-44.

Astro's Bob Stevens fired 73 for low medal score, with Jim Dinsmore of Pomona placing second with 75.

PRA Commissioner Paul Kiszeli and Dick Tobias, ARA commissioner, presided at a buffet dinner for members of both teams following the match.



AROUND THE BASES—Top left: program to add closed circuit television to Series "E" operational Atlas bases was completed recently four weeks ahead of schedule. Col. J. W. Yeater, commander, 566th Strategic Missile Squadron at Warren AFB, and GD/Astro's A. "Tony" Sansone review schedules. Top center: Col. Calvin W. Fite Jr., SATAF commander at Plattsburgh AFB, presents Mercury desk model to Gov. Nelson Rockefeller after tour of Site No. 1. Brig. Gen. Winton R. Close, 820th Strategic Aerospace Division commander, is in center. Top right: during 148th anniversary of Lake Champlain battle, GD/Astro's W. H. Dunn, operations manager, places wreath at Plattsburgh monument. Lower left: GD/Astro folk at Walker AFB took part in Eastern New Mexico State Fair parade. On truck is Barbara McLain. Louis and Donna Renelli stand below with Howard Rang. Lower center: cash in foreground represents $11,000 disbursed to local charities on behalf of GD/Astro Employees' Con-Trib-Club at Walker. At head of table, left and center, are Paul Wright of Con-Trib committee and Craig Bramley, representing Rex Ubben, operations manager. Others, from left, Rodman Cookson, Mrs. Don Clark, Roy E. Crocker, W. A. Hutcheson, Frank Kaufman, James Stockton, Herb Henly. Lower right: at Cape Canaveral, T. J. Phillipp, right, Con-Trib representative, presents $500 gift to Garth Walker of Orange Memorial Hospital, Orlando, Fla., from GD/Astro employees. During fiscal year ending Sept. 30, Con-Trib-Clubs at off-site bases donated $154,647.30 to charity.

Club Program Briefs Students On Future in Industrial Fields

VANDENBERG AFB — Members of General Dynamics/Astronautics Management Club here have sponsored the first in a series of educational lectures known as "Astronautics in Education."

The lectures were conceived by club members and officials of Santa Maria schools. Aim of the program is to acquaint high school students with types of work they may encounter following graduation, if they elect to enter industrial fields.

Marvin Hein, GD/Astro, serves as committee chairman in planning the series. He and his group worked closely with Verne Graham, principal of Santa Maria high school, and Clark Miller, principal of Righetti high school. Plans call for monthly presentations.

Harry Eastman III, Astronautics senior electronics engineer from the main plant, presented the first lecture Oct. 22 at Santa Maria high school. He spoke on "The Future of the U.S. Man-in-Space Program."

Safety Light Idea Wins Prize at Cape

CAPE CANAVERAL—George I. Leary, GD/Astronautics missile mechanic here, was a recent winner in a monthly Center Safety Office Hazard Hunting Contest staged by Patrick AFB.

As a monthly winner he is eligible for a grand prize for the best safety suggestion of the year. Monthly winners receive mechanical pencils, with a wrist watch going to the annual winner.

Leary's suggestion was the addition of indicator lights or a sign to indicate "power on" in operation of liquid nitrogen evaporators. His idea alerts personnel to the possibility of power feedback during periods when certain panels are being repaired or altered.

Bank Selected For Con-Trib Gift Ceremony

WALKER AFB — In an appropriate setting (Security National Bank) and behind $11,000 in cold cash, representatives of GD/Astronautics Employees' Con-Trib-Club here recently passed out checks to community agencies.

The grants were to Roswell, N. M., area organizations.

Representing Con-Trib-Club were Craig M. Bramley, chief of industrial relations, and Paul Wright, IAM representative on Con-Trib's Advisory Committee here.

Receiving funds were: Tuberculosis Association ($500); American Heart Association ($500); YMCA ($3,580); United Fund ($4,000); Muscular Dystrophy ($500); American Cancer Society ($500); Cerebral Palsy Fund ($500); St. Mary's Hospital ($700); and Multiple Sclerosis ($500).

STILL CHAMPS—For past three years this quartet, sponsored by GD/Astro at Vandenberg AFB, has won Vandenberg Tuesday Night Women's bowling league. Known as Atlas Lassies, team includes (clockwise from left) Pat Sparks, Pat Malone (Dept. 576-0), Wanda Jones and Delores Cox (Dept. 576-2).

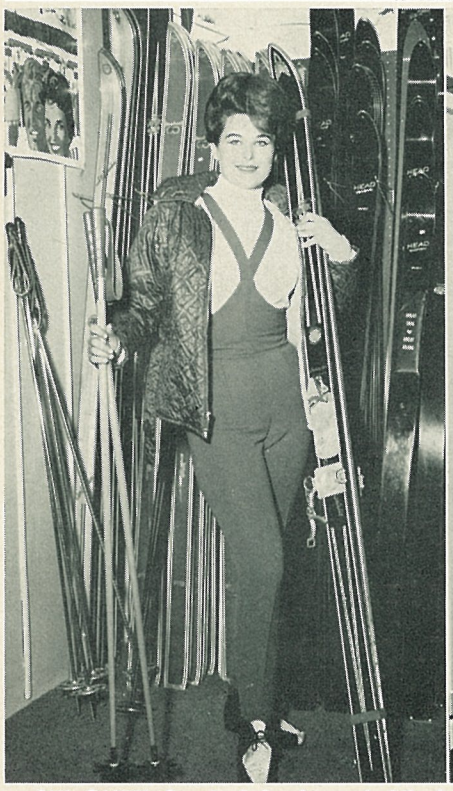
Cigar Replaced In Tradition At Test Site

EDWARDS RS—Tradition has been altered slightly, but continues unabated here among General Dynamics/Astronautics personnel conducting Centaur tests.

Over a long period of time those concerned with the tests at Test Stand 1-1 have always concluded a successful test operation by presenting the test conductor involved with a token of congratulations.

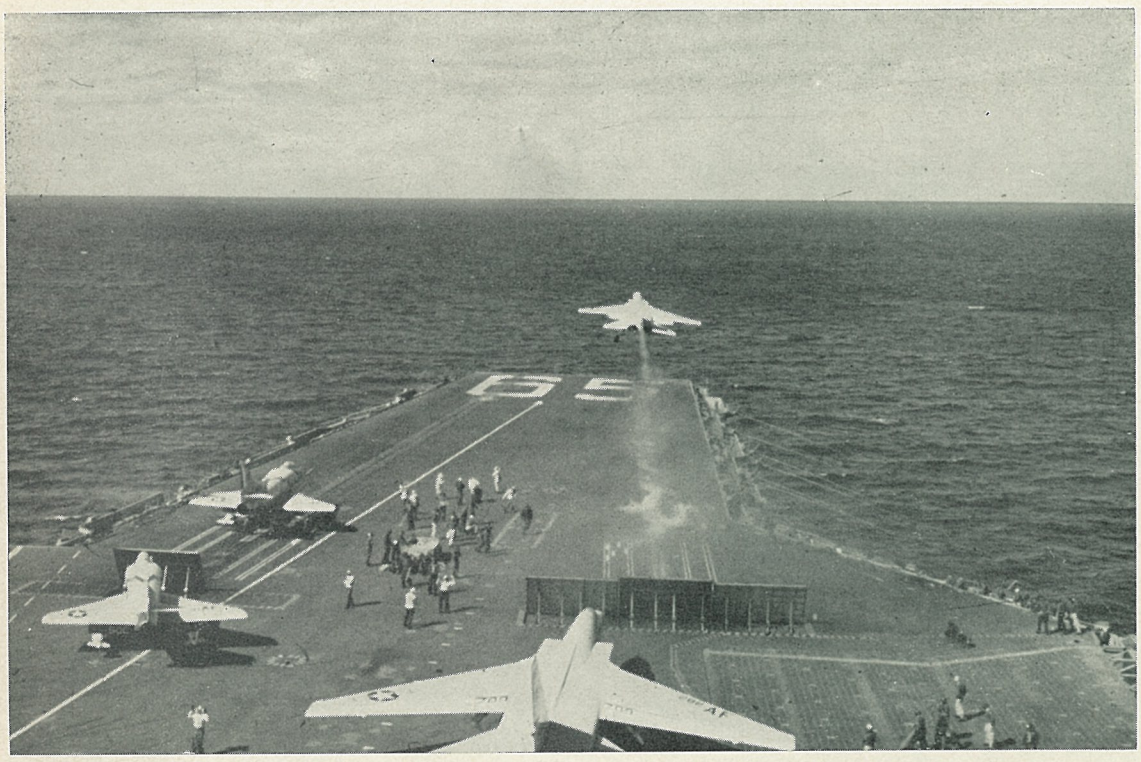
While Dan Sarokon, now Astro test conductor for Centaur at AMR, was test conductor here it took the form of a big, black cigar of the type he loved to puff.

John Mantle is test conductor now, but does not smoke cigars. So Major Joe Heatherly of the National Aeronautics and Space Administration and V. L. Allwardt, Astro manager here, substitute a pack of cigarettes for every successful test.



SKI QUEENS—At left above is Virginia Mateja, GD/Astro Dept. 523, in photo by Bob Weaver. She will represent ARA Snow Ski Club in county-wide Sno Ball. At right is Mildred Mosier, GD/Convair Dept. 34, who will represent CRA Ski Club in event.

NICE GOING, JOHN—John Mantle, GD/Astro test conductor at Edwards RS, receives pack of cigarettes from NASA's Major Joe Heatherly, traditional gift for successful completion of test. Custom required hasty alteration when Mantle's predecessor, Dan Saroken, left to become Centaur test conductor at Cape Canaveral. Unlike Mantle, Saroken smoked cigars.



OFF THE DECK—Navy A3J attack bombers swoosh off aircraft carrier Enterprise during recent three-month checkout of REINS navigation and bombing system, for which GD/Electronics at SD is building radar. Maneuvers took Enterprise into Mediterranean and Aegean waters.

Navy Squadron Checks Out A3J Bomb-Nav. Gear

A Navy heavy attack squadron recently completed first operational checkout of the A3J-1 bomb-navigation system, including the GD/Electronics-developed radar, during a three-month exercise in the Atlantic and Mediterranean.

Initial deployment of the weapon system at full squadron strength was the assignment of the planes aboard the Navy's largest aircraft carrier, the Enterprise. The large nuclear-powered craft with its squadron of A3J Vigilantes made a first run from its home base at Norfolk, Va., to Boston, Mass., over the Fourth of July before leaving for European waters.

Simulated shore and ship attacks were made, day and night, throughout the voyage and training exercises were coordinated en route with ships of other NATO countries, reported Max Leeds, GD/E chief of REINS support engineering. Leeds made the entire cruise in support of checkout and maintenance of GD/E's radar system.

Other GD/Electronics men involved included Norm Niemet, GD/E field service representative, who was aboard during the Norfolk to Boston run, and J. L. Brooks, GD/E manager of airborne radar engineering, who kept in close touch with progress of operations, meeting the ship in Naples for a short briefing.

A team of five North American Aviation field engineering representatives were assigned to the task throughout the air operations.

The Enterprise spent several weeks in the Mediterranean and a week in Aegean Sea, before returning to Norfolk in mid-October.

GD/E Engineer Pays Visit to Barcelona

A GD/Electronics engineer was able to snatch a few days from a recent tour of duty to visit relatives in Barcelona, Spain, whom he hadn't seen in 26 years.

Max Leeds, assigned to the Enterprise during checkout of the REINS system, took opportunity of a short leave at Cannes to fly to Barcelona, his birthplace, for a family reunion. Joined by his mother and father, now of New York, he renewed ties with an aunt and uncle whom he had not been able to visit since the Leeds' family left Spain during the 1936 revolution.

HORNE SPEAKER AT LOS ANGELES

C. F. Horne, General Dynamics/Pomona and GD/Electronics president, was keynote speaker Oct. 25 at the California Industrial Development Conference in Los Angeles. His subject was "Electronics—Aerospace—and You."

HOME AGAIN—GD/E and North American men review tasks in support of REINS operational tests aboard Enterprise following return to San Diego in mid-October. From left are Phil Harms, North American field engineering rep; Norm Niemet, GD/E field service rep; Max Leeds, GD/E chief of REINS support engineering.

GD/E Delivers Radar System For A3J Navy Attack Plane

Delivery of an advanced radar system for the A3J Navy attack bomber has been announced by the builder, General Dynamics/Electronics at San Diego. The A3J is a carrier-based aircraft built by the Columbus Division of North American Aviation.

GD/Electronics developed the radar under a series of contracts from North American's Autonetics Division. Value of the contracts to date is set at approximately $27 million.

The radar is being built as a sub-system of REINS (Radar-Equipped Inertial Navigation System) which Autonetics is producing for the Navy aircraft.

The original General Dynamics contract covered engineering and design work. Other contracts were then issued for production, spares, tooling, and test equipment, and support services such as field engineering and test programs. All the development and production effort has been handled at the GD/Electronics plant in San Diego.

The lightweight, versatile radar is a major sub-system of the A3J navigation and bombing system, which can be used for low and high level penetration and delivery of conventional and nuclear weapons. It is also capable of being used for launching of air-to-ground missiles.

Various radar operational techniques provide a presentation in the form of a ground map on the radar indicator. Navigational fixes for determining aircraft position can then be obtained from this ground map.

Pitch and roll stabilization is provided, producing a steady map throughout normal maneuvering of the aircraft. An antenna tilt control permits uniform ground illumination from any altitude. The tilt control is also used to spotlight a particular target.

For bombing missions, the radar provides accurate target coordinates by utilizing sector scans, expanded sweep, and range and azimuth cursors. Slant range information is obtained by manually positioning a range cursor over the selected target displayed on the range indicator. Then the range cursor automatically tracks the selected target.

As the aircraft makes its approach, the target can be kept at a constant size by use of a variable-expansion sweep.

The aircraft has separate radar indicators for the pilot and bombardier-navigator. Provisions are incorporated in the bomb-navigation system for displaying closed circuit TV on indicators for both the pilot and the bombardier-navigator.

W. S. Stroud is REINS program manager at GD/Electronics.

Cameras 'Thump, Splash' After Rides on Atlas

Although only "hitch hikers" in a sense, motion picture cameras now riding some test-launched Atlas missiles are opening up new possibilities in the field of in-flight instrumentation.

General Dynamics/Astronautics and the Air Force have been experimenting with this technique over the past five months at both Pacific and Atlantic Missile Ranges.

To date, results have been encouraging.

Just what happens as an Atlas lifts off and goes through its sequence of programmed maneuvers before engine cut-off is vitally important. Telemetry data and long range telescopic tracking units have provided information which is highly reliable, but somewhat limited in detail.

Motion pictures capture details and provide a lasting record.

Movie cameras in the past have filmed nose cone separation, but the current work is the first showing booster staging.

Current experiments involve two different installations, one for filming lift-off, another for photographing staging. Cameras are basically the same, shooting 100 feet of film at 400 frames per second. Each may be equipped with a Sun Gun light for 3,200 foot candles of illumination, if needed. Both camera and lights are powered by small 28-volt batteries, one per unit.

Lift-off camera development work has centered at GD/Astro with C. N. De Mund as leadman on a team that includes Blake Barton, W. G. McClure, D. W. Berry and H. I. Reavely, assistant supervisor. All are members of Astro's motion picture and television section of communication department.

Other departments have contributed to the effort, especially sections of engineering design and test laboratories.

Strong aluminum housing units are built around the section housing the camera. Self-hardening foam is poured between the sections. Complete units weigh about 35 pounds. They are positioned on the exterior of the thrust section and "shoot" through quartz glass "windows."

These units operate for about 10 seconds following lift-off, but because of their speed, turn out 4,000 frames of film.

Recovery equipment is mounted snugly inside and includes a 14-foot parachute. A cable, coil spring and a small explosive charge work in sequence to eject the entire unit down through the Atlas engine exhaust stream.

"Despite the slowing of the parachute, camera units normally strike the ground at about 50 miles per hour," De Mund said.

Provisions for camera mountings are made at GD/Astro main plant with test base personnel handling installations, with technical assistance from photo specialists.

Cameras for photographing staging usually do not start shooting until Atlas is 50 miles up and 50 miles downrange. Cased in aluminum tubes, they are normally mounted on the aft end of the missile tank and provide 110-degree views.

Because recovery is usually made from the ocean, staging cameras require more elaborate gear.

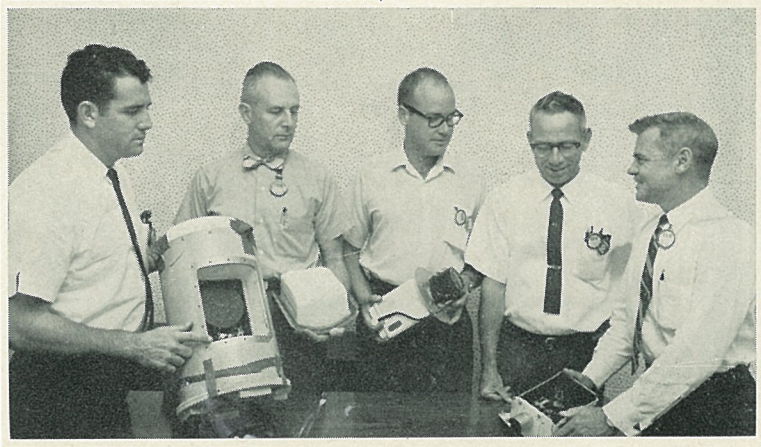
They utilize a para-balloon that later provides flotation. Small strobe lights, radar chaff and a radio beacon help patrol craft find them.

Drop tests were conducted at Point Loma, then complete units were taken up to be dropped from helicopters, with or without parachutes.

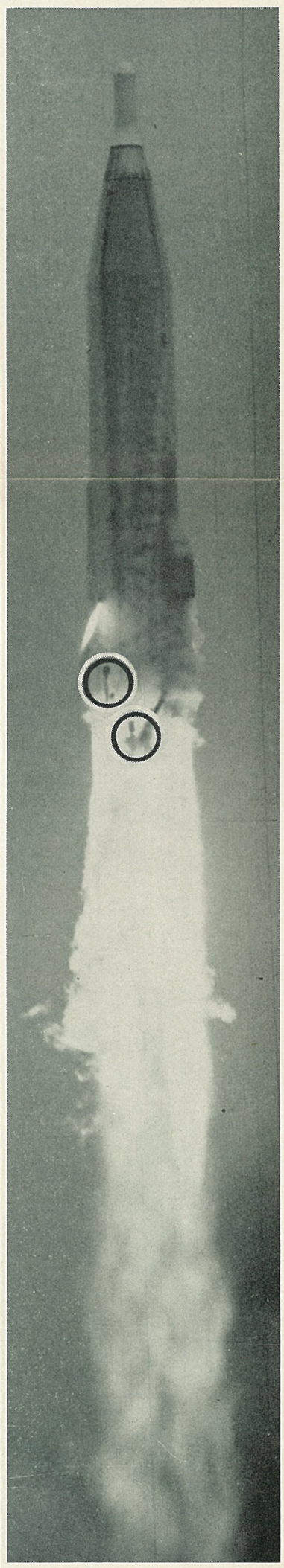
"The fact we have recovered cameras with useable film from missiles destroyed by range safety officers after lift-off indicates the packaging techniques used are sound," Reavley added.

In fact, some recovered cameras were in good enough condition for further use.

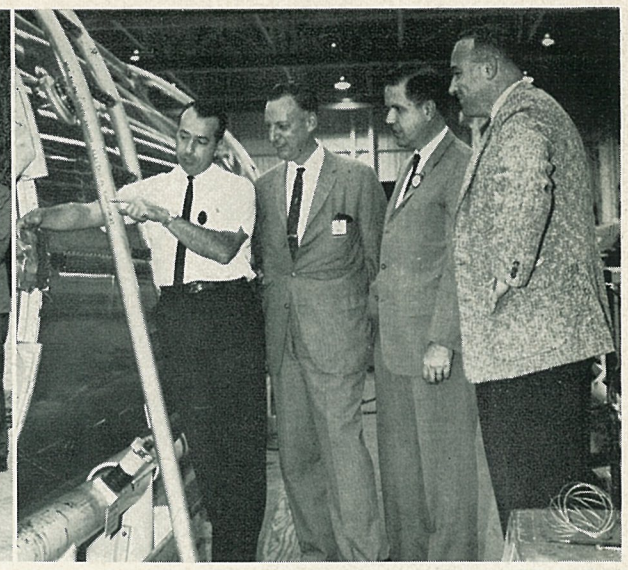
Success of the current effort has been such that those responsible are eyeing other applications for their "hitch hikers," possibly in some role involving space launch vehicles under development.



KEY MEN—Among GD/Astro men who developed system for mounting motion picture cameras on Atlas for filming in-flight operations are, from left, W. G. McClure, Hal Reavely, C. N. De Mund, D. W. Berry and Blake Barton.



EJECTION — Circles indicate movie cameras instant after being jettisoned by rising Atlas.



CONTACTS—Key men from Lewis Research Center, NASA, have visited GD/Astronautics recently to establish working relationships. In center above, from left: J. R. Dempsey, GD/Astro president; Dr. Abe Silverstein, director of Lewis Research Center; C. S. Ames, GD/Astro vice president and program director-space launch vehicles; G. L. Hansen, GD/Astro vice president and program director-Centaur; Bruce Lundin, associate director for development, Lewis; Ronald Rovenger, deputy project manager, Lewis. In photo at left are T. C. Courington, GD/Astro manager of contracts-Centaur, and L. Charles Perry of Lewis, chief, Centaur procurement office, in charge of contractual management for Center. Photo at right: Harold Miller, GD/Astro chief of assembly/Centaur, discusses point with J. Cary Nettles of Lewis, acting project manager for Centaur. Watching are Hansen and Rovenger. For a story on Lewis Research Center itself, see page 5.

GENERAL DYNAMICS

NEWS

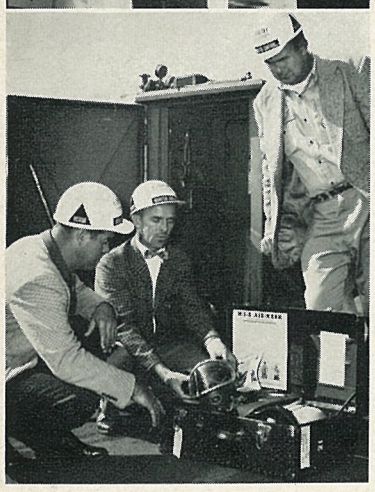
GD

ASTRONAUTICS EDITION
(OFF-SITE)

Vol. 15, No. 24 PUBLISHED BY GENERAL DYNAMICS CORPORATION 52 Wednesday, November 21, 1962

CONDITION RED—A. M. Young, GD/Astro disaster control coordinator, discusses "red" telephone system which links President J. R. Dempsey with key members of disaster control staff.

Disaster Control Organization Geared to Varied Emergencies



EQUIPMENT — In top photo, from left, Mrs. L. G. Miller, nurse, William Timmer, aide, and Dr. A. J. Bellanca, chief physician, inventory mobile first aid cart. Below, Joe Childers, Team Leader Ken Arbo, Jim Whiddon, Dept. 250, stock rescue cart.

Spurred by the recent Cuban crisis, further refinements have been added to General Dynamics/Astronautics' already established plan for disaster control.

Groups to provide various services in the event of disaster have been organized and trained, emergency equipment is in place throughout the plant, and an improved in-plant alarm system is being installed.

"Nuclear attack is but one of several emergency situations disaster control organization is prepared to meet," said A. M. Young, coordinator.

"Primary aim of the program is to provide an organized force to augment normal plant protective services in any situation where life or company property is endangered. This might result from falling aircraft, earthquake, fire, etc."

Of major importance to all employees are two signals, which, in an emergency situation, will be sounded on klaxon horns throughout all plant areas.

First of these is a series of six prolonged (3 to 5-minute) steady blasts on the warning horns. This signals an emergency, and employees are expected to leave the plant in an orderly manner, returning to their homes.

(Certain key employees have been designated to aid the disaster control organization in securing classified materials, closing down utility services, etc.)

(Continued on Page 2)

Center Names Key Trio to Guide Centaur

Dr. Abe Silverstein, director of NASA's Lewis Research Center, has selected a trio of key executives to guide project management of the Centaur program at Lewis Center.

They are: J. Cary Nettles, acting Centaur project manager; L. Charles Perry, chief, Centaur procurement office; and Ronald Rovenger, deputy project manager, field.

Nettles at Lewis Center and Rovenger at General Dynamics/Astronautics will be primary and secondary supervisors with responsibility for technical management. Perry at Lewis will head contractual management.

Dr. Silverstein has been associated with NASA and its predecessor since 1929 and holds a bachelor and master degree in mechanical engineering from Rose Polytechnic Institute. He has received many honorary degrees and awards for his scientific contributions. In 1943 he joined Lewis Center after working at Langley Research Center from 1929. By 1949 he was directing all research activities at Lewis and became associate director in 1952. In 1958 he moved

(Continued on Page 2)

★ ★ ★

NEW APPOINTMENTS MADE FOR CENTAUR

Intensification of the Centaur program effort at General Dynamics/Astronautics, in cooperation with Lewis Research Center, NASA, has led to a reorganization within the program and several new executive appointments.

J. R. Dempsey, Astronautics president, indicated realignment of the Centaur organization into a more consolidated structure is designed to make most effective use of Astro talents and capabilities.

Grant L. Hansen continues as vice president and program director.

New personnel appointments, reporting to Hansen, include: P. D. Ferrara, assistant program director-engineering; K. W. Jeremiah, assistant program director-operations; H. E. Whitmore, manager, systems management; M. R. Barlow, manager, program planning and change control; and R. A. Raffesberger, manager,

(Continued on Page 2)

Con-Trib Seeks Membership of 100% at Astro

An important message for a few employees is being circulated this week throughout General Dynamics/Astronautics.

The message concerns GD/Astronautics Employees' Con-Trib-Club, and is directed at the minority—the less than 20 per cent of GD/Astro employees—not presently participating in the program of planned giving.

First step in an effort to swell Con-Trib membership was the appointment of R. A. Ackley, engineering field test (Dept. 570), and J. F. Speed, transportation general foreman (Dept. 250), as co-chairmen of a solicitation effort.

The two were named by President J. R. Dempsey who urged full support of Con-Trib-Club, citing it as "a means for all employees to demonstrate a sense of community consciousness and to do so as members of the Astronautics family."

As co-chairman, Ackley and Speed will concentrate on seeing that all employees understand Con-Trib, how it works, and its value in supporting charitable community organizations.

To this end, they have made personal appeals to major departmental staffs.

Goal of the Con-Trib-Club membership drive is two-fold.

First aim, of course, is meeting the $300,000 pledge made this year to United Community Services (UCS), the unified organization supporting 65 recognized charities in San Diego County. Additional funds are needed to aid another two dozen organizations not represented by UCS.

No less important is the second campaign purpose: to make Con-Trib-Club an all-employee effort.

Last year Con-Trib disbursed some $442,250 to San Diego area charities, with an additional $154,647 collected from, and disbursed by employees at off-site locations.

Some $80,478 more was returned to 385 GD/Astro employees through Con-Trib's Emergency Aid program.

(Emergency Aid is a means through which funds are granted to employees faced by emergency situations beyond their means and control. Disbursements are made as outright gifts, and no repayment is asked.)

These figures demonstrate the tremendous "doing power" of Astronautics' 20,000-plus employees, united through Con-Trib as a

(Continued on Page 2)

PERSONAL APPEAL — "Working here, we may forget less fortunate members of our community. For decisive community service, belong to your Astronautics Con-Trib-Club," say Robert A. Ackley and John F. Speed, campaign co-chairmen.

GD/Astro Supplies 'Excursion Module'

Delegates to the 17th annual American Rocket Society Convention and Space Flight Exposition in Los Angeles last week were introduced to a new alphabetical abbreviation —"MEEEM."

MEEEM, supplied by General Dynamics/Astronautics to transport the 6,000 delegates between the convention site and four major Los Angeles hotels, was defined as "Manned Earth Excursion Express Module."

A still shorter expression, however, was also acceptable: "Bus."

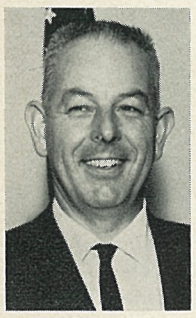
Log Book Entries

Service Emblems

MAIN PLANT

Service emblems due during the period Nov. 16 through Nov. 30.

Twenty-five-year: Dept. 759-0, W. M. Holland.



Felix O. Jones, Dept. 567-7, recently received 25-year emblem.

Twenty-year: Dept. 143-6, J. H. Hubbard; Dept. 290-2, L. R. Warren; Dept. 333-2, D. C. Pate; Dept. 344-1, C. T. Varns; Dept. 381-0, Levi Ely; Dept. 480-0, E. H. Sting; Dept. 781-0, F. B. Franklin.

Fifteen-year: Dept. 143-2, Viva G. Clagett; Dept. 220-0, S. L. Shipstead; Dept. 335-3, W. J. Crover; Dept. 480-0, H. S. Bowles.

Ten-year: Dept. 100-0, Beverley W. Larson; Dept. 170-2, H. B. Hensley; Dept. 222-1, La Ferne Ferreira; Dept. 321-6, K. C. Geyer; Dept. 331-1, P. G. O'Dell; Dept. 335-2, R. G. Hodson Jr.; Dept. 369-4, P. E. Wonsyld; Dept. 382-1, Q. P. Taylor; Dept. 388-3, R. L. Dixon; Dept. 451-0, K. G. Mason; Dept. 452-0, R. H. Bowersox; Dept. 523-1, E. V. Ewin; Dept. 580-5, J. W. Richardson; Dept. 591-5, R. E. Kerfott; Dept. 756-0, J. L. Barnes; Dept. 782-0, E. C. Edwards; Dept. 961-6, C. L. Greenman.

ALTUS AFB

Ten-year: Dept. 617-3, F. F. Campbell.

SYCAMORE

Ten-year: Dept. 573-3, Paul Stoops.

WALKER AFB

Ten-year: Dept. 619-4, Gilbert Rubalcava.

Promotions

MAIN PLANT

Promotions to or within supervision effective Sept. 24.

Dept. 140, Reliability Control: To reliability control administration supervisor, E. G. Callard, L. I. Fredrickson.

Dept. 321-5, Support Systems Engineering: To trainer devices supervisor, V. E. Boyer.

Dept. 524-0, Engineering Management Systems: To chief of engineering office services, D. H. McCoy. To engineering services supervisor, J. H. Love.

Promotions to or within supervision effective Nov. 5.

Dept. 101, Data Processing: To data processing general supervisor, C. E. Garner. To research group engineer, T. R. Dines.

Dept. 140-5, Reliability Control: To reliability group engineer (manager of reliability control-NOVA), M. L. Goldberg.

Dept. 142, Standards and Calibration: To process control supervisor, J. D. Stevens. To asst. process control supervisor, G. E. Whaley. To asst. test lab group engineer, D. E. Burgess, R. C. Delicath, C. S. Kikushima, M. J. Sexey. To asst. foreman, J. W. Collins.

Dept. 143-3, Quality Control: To inspection general supervisor, R. H. Sparks. To inspection supervisor, D. D. Lawyer.

Dept. 144-1, Support Quality Control: To process control asst. supervisor, P. H. King.

Dept. 193-3, Industrial Accounting: To timekeeping asst. supervisor, S. R. Stager.

Dept. 322-5, Support Publications: To support publications supervisor, E. P. Sitler II.

Dept. 335-3, Service Parts: To support logistics asst. supervisor, C. L. Hartwell.

Dept. 364-0, AWS Contracts: To contracts administrator, H. A. Lambert, R. P. Parmett.

Dept. 373-9, AWS Design Engineering: To design group engineer, E. A. Littlefield.

Dept. 661-4, SLV Electrical & Electronic Design: To asst. design group engineer, K. S. Telfer.

Dept. 951-2, Centaur Technical Control: To flight test group engineer, A. B. Yanke.

ALTUS AFB

Dept. 617-2, GD/Astronautics Operations: To production control asst. foreman, R. P. Miller.

DYESS AFB

Dept. 395-1, AWS Design Engineering: To activation engineering asst. supervisor-base, N. K. Burke Jr.

Births

MAIN PLANT

JOHNSON—Daughter, Debora Lee, 6 lbs., 11½ oz., born Nov. 13 to W. E. (Bill), Dept. 452, and Beverly (AFPRO) Johnson.

MASSEY—Son, James Donald, 7 lbs., born Oct. 7 to Mr. and Mrs. John Massey, Dept. 661-7.

Personals

MAIN PLANT

Our sincere appreciation for the kindness, sympathy and many courtesies shown to us following the death of our loved one, Curtis L. Bates.

Alice J. Bates and family.

* * *

We wish to acknowledge the expressions of sympathy received following the death of our loved one, Lloyd E. Shepherd. Your kindness is deeply appreciated.

The Lloyd E. Shepherd family.

Deaths

MAIN PLANT

WRIGHT — William P., Dept. 727-2. Died Oct. 31. Survived by wife, Elizabeth, Dept. 567-7, son and daughter.

Disaster Unit Has Flexible Organization

(Continued from Page 1)

A second signal—a continuous prolonged, wavering tone—will be used to indicate imminent danger. This signal means simply: Take cover.

Young's Bldg. 6 office is linked with a nation-wide military warning network, as well as state and county emergency organizations, by the bell-light Civil Defense Warning System. Radio equipment permits him to monitor six emergency frequencies.

On his desk is a red telephone, like 13 others in key offices throughout the plant. When Young lifts the receiver, red phones ring simultaneously in the office of President J. R. Dempsey, control officer, and other members of the disaster control staff.

When Young has advised them of the scope of the emergency situation, the staff meets in the basement of Bldg. 1 to direct subsequent operations.

Besides Dempsey and Young, staff members include W. E. Bowman (industrial security), A. C. Anderson (fire), A. C. Gates (guards), E. D. Bryant (wardens), W. J. Stanley (plant engineering), Dr. A. J. Bellanca (medical), J. F. Speed (transportation), J. R. Mitchell (welfare), F. L. Cook (security services), R. W. Kleinhans (communication), J. W. Garrison (safety), and K. E. Lauterbach (radiation monitors).

Via walkie-talkie radio, zone captains can be directed in localized or general evacuation of plant areas by means of their warden organizations.

First aid, heavy rescue, decontamination and other specialized teams may be called into action as needed, making use of equipment "kits" provided for them at various plant locations. Portable first aid units, for example, are now located in Bldgs. 8, 10, 17 and 23, and an auxiliary hospital is in readiness in the basement of Bldg. 4.

"In an emergency, employees should remember three rules: (1) Know the warning signals and what they mean. (2) Keep calm. (3) Quickly and carefully follow instructions of supervision," Young said.

"Disaster control is organized and ready, should it be needed."

Center Names Key Trio to Guide Centaur

(Continued from Page 1)

to NASA headquarters to plan and organize, then became director of the Office of Space Flight Programs, remaining until 1961 when he returned to Lewis Center as director.

Nettles has served as chief of the fluid system dynamics branch in the nuclear systems division at Lewis. In 1938 he earned an engineering degree at Louisiana State and joined Lewis Center in 1941. He has had extensive experience in fluid dynamics and has concentrated on zero-gravity research on high energy propellants and space power systems in recent months.

Perry holds a business administration degree from Western Reserve University and law degree from Cleveland Marshall Law School where he has completed about half the requirements for a master of laws diploma. He joined Lewis Center a year ago after 10 years with the Cleveland Ordnance District where he rose to become chief of the research and development branch.

Rovenger is a 1950 graduate of the U. S. Military Academy, West Point, who holds a master of civil engineering degree from Ohio State. After five years with the U. S. Army he worked for National Carbon Co. and Hayes Aircraft. He joined NASA's Marshall Space Flight Center in early 1961, transferring to GD/Astronautics shortly thereafter. As head of a group of 25 (soon to become 35) employees at Astro, he is responsible for NASA activities locally.

Over a period of several weeks Dr. Silverstein and other key men involved in the Centaur program at Lewis have visited Astronautics for a round of conferences and briefings. Included was Bruce Lundin, associate director for development at Lewis Center, under whom the Centaur program is directed.

Overall program management of Centaur is a responsibility of NASA's Office of Space Sciences, directed by Dr. Homer Newell. Vincent L. Johnson is Centaur program manager.

The transfer of Centaur project management to Lewis Center was part of a three-step program worked out by NASA to intensify its development of liquid hydrogen use for future space application. Other steps included studies to determine the merits of adapting the Centaur stage to other boosters for future use in the NASA space exploration program, and the assignment of project management for the M-1 rocket engine to Lewis Center.

The M-1 engine develops 1.2 million pounds of thrust and is designed to be clustered to power the second stage of the Nova launch vehicle.

(Astro is conducting a vehicle systems study and preliminary design of the Nova vehicle for NASA.)

OPERATIONS DEPTS. TO DONATE BLOOD; GOAL IS 200 PINTS

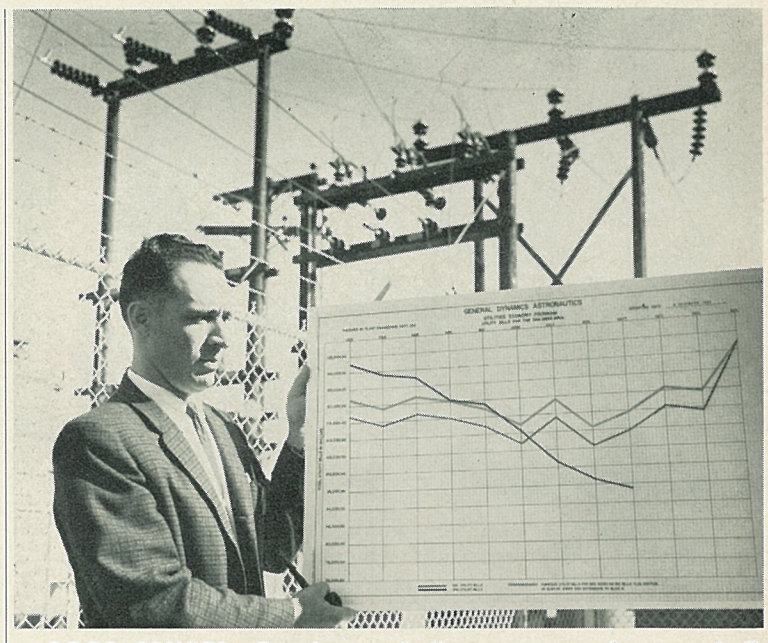
Operations department employees at General Dynamics/Astronautics are the target for solicitations during the current San Diego Bloodmobile visit to the main plant.

Goal of the drive is 200 pints of blood.

Following arrangements made within departments, volunteers are transported via shuttle bus to ARA Clubhouse where the donor station has been set up. The campaign will continue during first shifts through Nov. 28.

Blood donors are needed to replace supplies used since the last Bloodmobile visit (over 600 pints during 1962), and to provide reserves for future use.

Arrangements for this service are handled by employee services, Bldg. 8, ext. 2657.



GOOD RESULTS—Fronting symbolic power transformers, J. T. Dragonetti of GD/Astro plant engineering shows off chart depicting utility cost reductions realized in current drive. Heavy line starting at top left is actual cost of utilities, slanting well below forecasts. Goal is to shave $200,000 off annual $1.5 million for utilities.

Utility Costs Slanting Down Under Pressure of Campaign

During the first quarter of a division-wide utilities cost reduction drive at General Dynamics/Astronautics savings of over $39,000 have been realized as compared to a comparable period in 1961.

Continuation of this trend will insure realization of a goal of reducing annual utility costs (now about $1.5 million) by $200,000.

Centered within Astro's San Diego operations, the intensive effort dates from May. However, the first month in which comparison could be made was July. July utility bills were $13,507.33 lower than July, 1961, costs. In August the reduction was $9,564.-91 and in September, $16,272.02. Total "below" for the three months: $39,422.21!

W. J. Stanley, manager of plant engineering and leader of the drive, lauded employees and departments.

"If we can continue to install cost-reducing ideas for the remainder of the year at the same rate as the initial three months, our goal will be well within reason," Stanley said.

Individual employees continue to play key roles, especially in the area of reducing electric power useage. Cutting electrical power use would account for at least half the total savings sought.

Toward this end employees are urged to turn off lights not in use and to be especially careful to extinguish lights at the end of shifts. Too, shutting down electrically-driven machinery when not in use will result in noticeable savings over a period of time.

Employees with ideas or suggestions are urged to turn them in via Employee Suggestions or Cost Improvement Proposals or to call plant engineering direct. D. E. Merriam or J. T. Dragonetti, both ext. 3486, will discuss proposals.

New Centaur Appointments Made In Intensification of Program Effort

(Continued from Page 1)

program coordination and scheduling.

Replacing W. R. Jackson, who has resigned, as manager of test operations is J. S. Harrison.

Continuing their previous assignments and reporting to Hansen are: J. C. Cannady, manager, financial control; T. C. Courington, manager-contracts; W. R. Monroe, manager, reliability control; and F. E. Wilhelm, assistant to the vice president and program director.

Reporting to Ferrara will be G. D. Davis, chief engineer—design, and W. F. Radcliffe, chief engineer—analysis and development, and O. C. Priest, technical services general supervisor. Under Davis will be L. E. Lightbown, assistant chief engineer—mechanical, and G. A. Carlson, assistant chief engineer — electrical. Under Radcliffe will be S. P. Hartzberg, assistant chief engineer—guidance and control, and R. S. Wentink, assistant chief engineer—design analysis.

Jeremiah will have reporting to him: R. C. Lynch heading launch operations at AMR; L. G. Granstedt, manager of manufacturing; Harrison, test operations manager; and E. J. Bryant, material manager.

Scheduling chief R. T. Lyles now reports to Raffesberger.

Whitmore's organization includes W. S. Hicks, chief of test integration; J. Grace, chief of systems integration; and a chief of payload integration to be named later.

Management structures in other parts of the organization remain unchanged.

Con-Trib-Club Seeks Full Support During Current Membership Drive

(Continued from Page 1)

force for community service.

They represent the sum of many small contributions made regularly through the payroll deduction system.

This year's campaign will consist of personal solicitation of employees not presently participating in Con-Trib-Club by their supervisors.

Next Wednesday (Nov. 28), each non-member will receive a tab card bearing his name. On this he will indicate whether or not he wishes to participate, and the amount of his weekly contribution.

Con-Trib funds are disbursed through the group's board of directors whose members are volunteer representatives of both unions and management at GD/Astro.

Board members include Mike Alianelli (management), C. S. DeNardo (UWA), D. W. Glasser (company), L. D. Graeff (IAM), D. A. Haslanger (company), L. W. Janson (EAA), D. H. McCoy (company), J. R. Mitchell (company), W. B. Ramsey (EAA), J. T. Schultz (company), E. A. Schiappa (IAM), J. F. Speed (management), and J. L. Wages (IBEW).

Also during the campaign, Con-Trib-Club members will receive 1962-63 club stickers. These stickers displayed at home, indicate to solicitors that residents have contributed to all recognized charities.

Employees wishing additional information about Con-Trib have been urged to contact their supervisors, or call Keith Sears, employee services, ext. 2324.

General Dynamics NEWS

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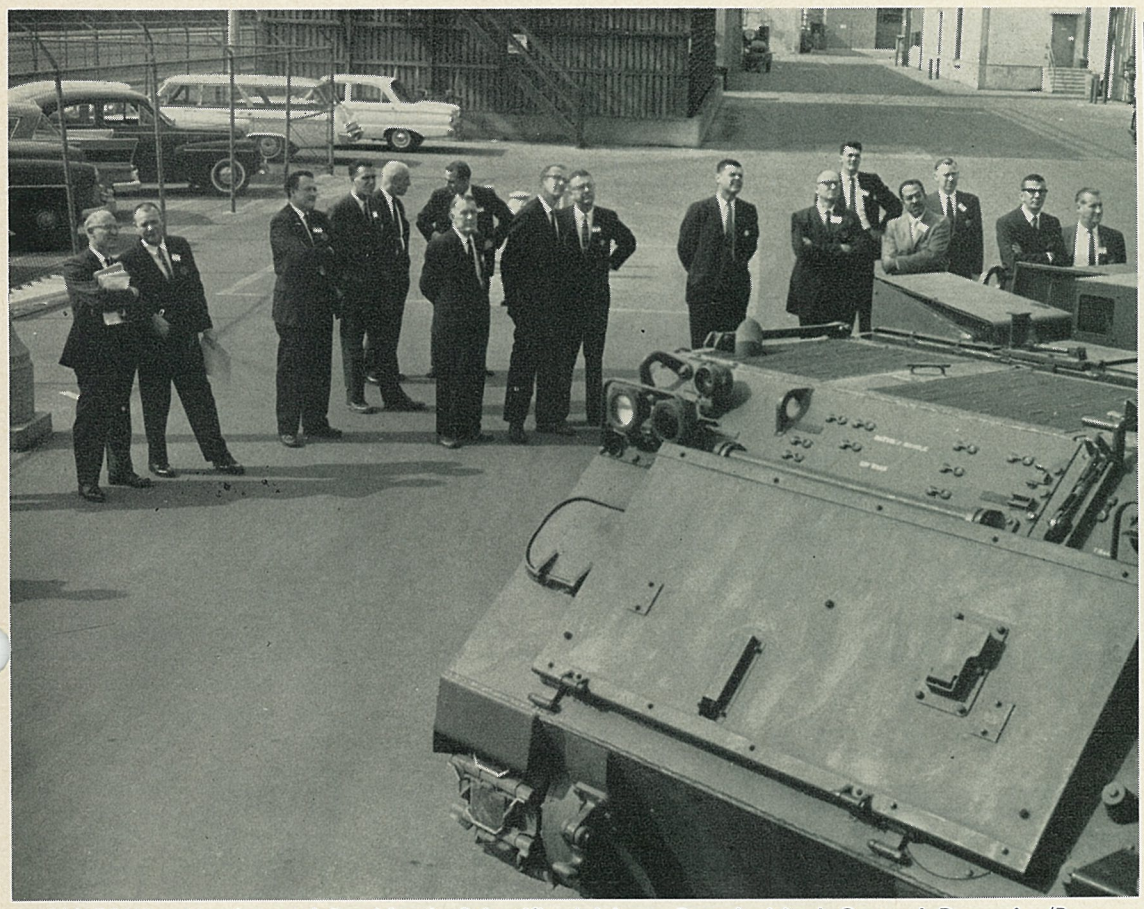


ON TOUR—Members of President's Scientific Advisory Board visited General Dynamics/Pomona earlier this month for briefings and demonstrations of Mauler Weapon System. On tour were Dr. Luis W. Alvarez, chairman of Limited Warfare Panel; Dr. Wm. B. McLean, technical director, NOTS; Dr. Charles C. Lauritsen, physics professor, California Institute of Technology; Dr. Vincent V. McRae, technical assistant, Limited Warfare Panel; Nelson Riordan, manager, re-entry systems analysis, Aerospace Corp. Col. Milford Wood, office chief—Research and Development, Army, and Ron Gober, Mauler project manager, Army Missile Command, Redstone Arsenal, also were at Pomona to participate in Mauler program discussions.

'All's Well'

Research Boat Radios Conditions to Shore

A steady white light is a reassuring sight to General Dynamics/Convair instrumentation engineers as they train binoculars on an orange and white craft, now moored off-shore as an instrumentation test bed in current oceanographic studies.

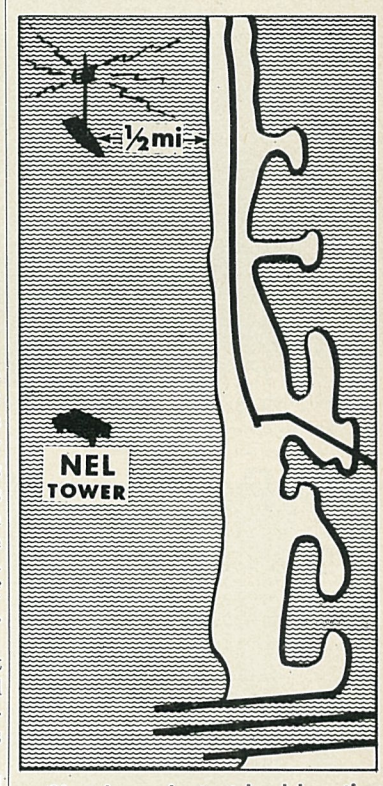
The 36-ft. all-steel Navy landing craft, topped by a 30-ft. snorkel, was anchored on-station about half a mile off the Mission Beach shoreline at San Diego the end of October. It will be signaling "all's well" for the next three months as it proves out GD/Convair-developed components, principally engine generator and electrical equipment, to be used for telemetering buoys.

GD/Convair instrumentation engineers in the oceanographic group are reaching final stages in their development and testing of radio telemetering techniques by which instrumented buoys would transmit information from any part of the ocean to shore stations. Work is performed under a contract from the Office of Naval Research, Washington, D. C.

All equipment aboard the test craft is now in operation and functioning satisfactorily, according to Robert Devereux, who acts as principal investigator for ONR.

Coded signals are transmitted over a radio telemetry link to GD/Convair's engineering data station. Information, such as battery voltage, pitch and roll angles, mooring load, is tape recorded as it arrives at the data station, then played back through data reduction equipment for oscillograph records. Pickup of wind direction and velocity may be added later to transmitted information.

A camera is constantly photographing the instrument panel in the craft, recording such items as data correlation, time of day, manifold pressure, engine revolutions per minute, engine and snorkel temperatures, and pressure measurements. Film will be replaced once a week.



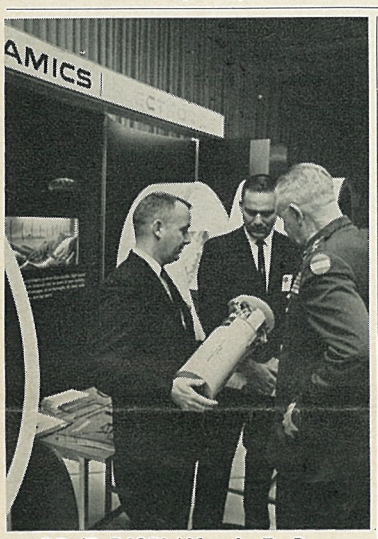
Sketch marks test bed location off coast near San Diego's Mission Bay.

Telemetering instrumentation aboard the boat can be controlled by remote-controlled commands ashore by use of a VHF radio remote control system in oceanographic headquarters, Bldg. 51, Plant 1. Telemetry equipment can be turned on and off and calibrated by a switch of a button in the GD/Convair plant. Also, an ultra high frequency radio link allows direct voice communication by anyone aboard the boat to the Plant 1 data station.

A blue light atop the snorkel indicates that the engine is running; the flashing white navigational light warns other craft of the boat's location. A steady white light indicates that all functions are operating. A microphone aboard picks up strange noises which might need investigation.

Present equipment check is but one phase in the overall oceanographic study which will determine the best transmission package, including not only instrumentation but buoy configuration, antennas, power plant for gathering ocean and atmospheric data automatically.

Involved in the studies, besides Devereux who has been in charge of coordinating the oceanographic project since its inception, are Gene Wilson, Warren Hoover, Ken Morgan, James Lack, Jack Heming, all reporting to Norm Reed, flight test group engineer. V. J. Schack is responsible for overall direction.



GD/E DISPLAY—J. E. Bowen, GD/Electronics, San Diego, shows production model of terrain avoidance radar to Gen. Barksdale Hamlet, Vice Chief of Staff, U.S. Army, at Washington, D. C. In center is R. D. Childs of GD/E, SD.

GD/E Terrain Avoidance Radar Displayed at Army Gathering

Display of the terrain avoidance radar system, developed by General Dynamics/Electronics — San Diego, drew hundreds of spectators at the annual meeting of the Association of the U. S. Army in Washington, D. C.

During the three-day exhibit, 1,700 persons tried their skill at manually operating controls of the "pin-ball" demonstrator, said J. E. Bowen, GD/E requirements representative. Lights flashed and a "clobbered" sign brought red faces when operators let the indicator move out of control. Black-edged "condolences" went to failures and bright green "home safe" certificates to the successful.

The demonstration illustrated capabilities of the GD/Electronics-developed TAR system which allows aircraft to fly ground-hugging missions, manually or automatically, at altitudes under 400 feet. The terrain-following radar system warns of obstacles ahead, regardless of visibility.

Other GD/Electronics men at the meeting included J. W. Colvin, manager of plans and programs; P. B. Johnson, manager of communication, who supervised the GD/E exhibit; R. D. Childs, requirements representative; J. M. Green, engineering development technician, who provided maintenance on the display.

J. R. Dempsey Honored By Rocket Society

General Dynamics/Astronautics President J. R. Dempsey has been elected a Fellow of the American Rocket Society. The honor was accorded at the Society convention in Los Angeles last week.

The award is made for "valuable and important engineering or scientific contributions in or related to rocketry or astronautics and for those who have attained national distinction in their field."

All-Dynamics Committee Created To Push Value Control Activities

A General Dynamics Value Control Committee to promote value control activities in all General Dynamics divisions and subsidiaries has been established under chairmanship of E. W. Feddersen, GD director of manufacturing engineering.

Representatives from six divisions and Canadair Limited met at GD/Convair Nov. 12-13 to draw up organizational plans and lay down ground rules. Each division will name a permanent delegate and periodic meetings will be scheduled several times a year, at different divisions.

At the first session were H. P. Williams, GD/Convair value control manager; E. D. Heller, GD/Pomona value control coordinator; M. M. Reeder, GD/Electronics-San Diego, value control coordinator; W. B. Roberson, GD/Fort Worth chief of project industrial engineering; J. A. Brackley, supervisor of value analysis at GD/Astronautics; A. S. Ross, manager of manufacturing engineering at GD/Electronics - Rochester; W. W. McKenzie, chief design engineer - design services at Canadair Limited; and Feddersen.

General purpose of the Value Control Committee is to promote the universal acceptance and application of value control in GD.

"Specifically, the committee will further the disciplines of value engineering by establishing cost targets; using new training systems and devices, measurements of program effectiveness, and mathematical methods of cost estimating," he continued. "In addition, we will endeavor to achieve a standardization to reduce duplication of efforts within the Corporation," Feddersen said.

Enthusiasm was so high at the initial meeting that a second session will be scheduled soon after the first of the year.

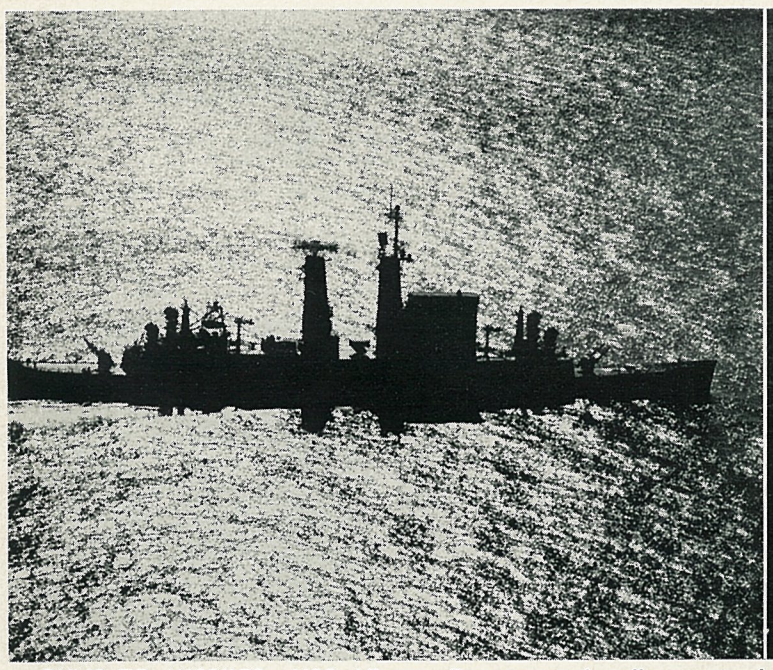
GROUNDWORK—Meeting to form General Dynamics Value Control Committee, organized this month at San Diego, are (from left) E. D. Heller, GD/Pomona; W. W. McKenzie, Canadair Limited; W. B. Roberson, GD/Fort Worth; M. M. Reeder, GD/Electronics, San Diego; E. W. Feddersen, GD director of manufacturing engineering; J. A. Brackley, GD/Astro; A. S. Ross, GD/Electronics, Rochester; H. P. Williams, GD/Convair.

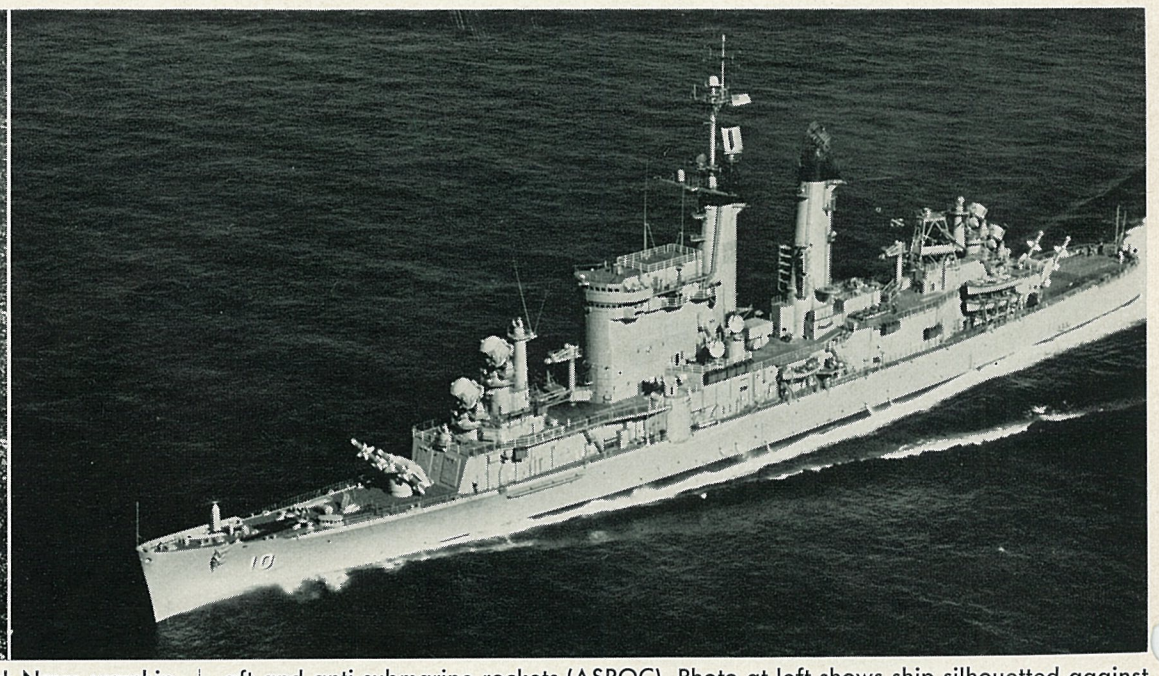
NOTS SEMINAR HEARS SCHROEDER

B. P. Schroeder, General Dynamics/Pomona chief of educational services, spoke at a value engineering seminar Oct. 31 at U. S. Naval Ordnance Test Station, China Lake, Calif. Subject of his talk was "Value Engineering in Manufacture of Military Equipment."

ON SHORE — Harvey Brown, GD/Convair engineering development technician, scans panadaptor in engineering data station during signal transmittal.

ON STATION—GD/Convair instrumentation engineers, Jack Heming, Warren Hoover, Gene Wilson, check equipment aboard orange LCP moored off San Diego's Mission Beach as test bed in oceanographic studies. La Jolla coastline in background.





GUNS TO MISSILES—USS Albany, first conventionally powered Navy warship to have all guns replaced by missiles, is shown under way during sea trials. Armament includes GD/Pomona-built Tartar missiles amidship, Talos missiles fore and aft and anti-submarine rockets (ASROC). Photo at left shows ship silhouetted against sun. Albany's sister ship, USS Columbus (CG-12) is also undergoing missile conversion, will be commissioned Dec. 1.—U. S. Navy photos.

GD/Pomona Activates New Ultra-Clean Room

A revolutionary new clean room to process delicate and intricate instruments was placed in operation at General Dynamics / Pomona last month.

"Tests show the new clean room is 200 times cleaner than the conventional hospital surgical room," says L. T. Flinn, test engineer (Dept. 6).

A class 2 (military standards rating) clean room was specified in plans. A class 4 room was considered an impossibility for the size needed — about 600 square feet.

"Results of an independent dust - counting analysis, using electronic - optical equipment, proved amazing—at least four times better than Class 4. It is a major breakthrough in the area of clean rooms for industry and surgical rooms for hospitals," Flinn stated.

The room is so free of dust particles that measuring devices have been taxed to their limits and a change in military specifications may be required. Not only is the room drastically cleaner than earlier types but it is also less expensive to install and maintain.

The extreme cleanliness is attributed to a new concept for clean rooms. Rather than blowing down from the ceiling and causing turbulence that tends to keep dust particles airborne, the air drifts through the room in a laminar flow from one end to the other. This flow literally washes away dust particles generated by technicians working in the room.

Clean air enters the room through an entire wall of absolute type filters at one end and leaves the room through a wall of return air registers at the opposite end.

The clean air handling system is manufactured by Agnew-Higgins, Inc., of Stanton, Calif., which already is working on application of the principle for surgical rooms.

The flow rate of clean air passing through the room is about one mile per hour—barely perceptible to persons standing in the room. Temperature (70°) and relative humidity (less than 50%) within the room are controlled by thermostats and humidistats.

Because of the laminar flow pattern of the air movement, there are relatively few areas where dust particles tend to accumulate, compared to conventional clean rooms. And most important the dust particles are gently swept away by the air movement rather than agitated by conventional clean room blowers.

There are 100 air changes per minute for any one foot of lineal space in the room—an even flow of air without turbulence in the working area 17 feet wide, 35 feet long and 8.5 feet high.

There are a minimum of obstructions to upset the steady flow of air. Open shelves are used for storage; benches are plain slab type with formica tops and pedestal legs.

Storage cabinets are housed in a smaller anteroom in which the engineers and technicians change into special clean room garments.

Work clothes consist of dacron coveralls, "booties" and surgical type hats—all certified clean and regularly changed. The space through which the instruments are passed into the room has doors on each side and is pressurized so that the air flows into the anteroom and not into the clean room.

No pencils are permitted in the room—just ballpoint pens—and only lint-free paper is used for recording data. No smoking is allowed and personnel traffic is held to a minimum.

There is never any wiping off or blowing off of dust particles from instruments or work benches. Eight vacuum outlets have been provided at convenient locations in the room for additional "dust free" protection.

Costly accessories such as air showers and shoe cleaners are unnecessary since dust from any source is continually carried out of the room. Operating costs are substantially lower because the room can be shut down when not in use. Even the special clothing is not vital.

Tests indicate the eight filters have a cleanliness efficiency of up to 99.97 per cent on particles of .3 microns in size. And a micron is equal to only 40-millionths of an inch!

'Close Air Support' Article Published

An article on "Close Air Support" by N. R. MacIntyre, GD/Convair engineer, appeared in the November-December issue of Ordnance, publication of the American Ordnance Association.

It deals with a proposed concept of a weapon system framed around small military craft, now under investigation by GD/Convair engineers.

"Still" Cleans Used Solvents

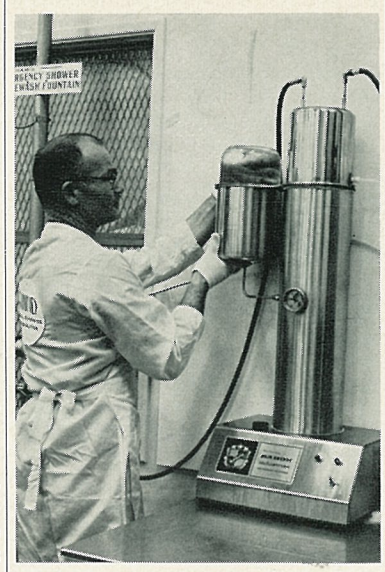
General Dynamics/Astronautics makes missiles—not "moonshine"—but employees of processing (Dept. 733) at San Diego are mighty proud of their new still!

The department's clean room facility uses about 10 gallons of freon solvent each day, cleaning missile and support equipment components.

"New freon solvent costs $9 to $10 per gallon," explained M. M. Goodhart, general foreman. "With the still, we can purify used solvent by redistillation and use it over again."

J. G. Morones, production engineering (Dept. 480) methods engineer, was instrumental in installing the still. He has estimated that use of the device will save GD/Astro over $23,000 annually by reclaiming freon solvent alone.

"Expanded operations may save up to $50,000 per year," he said.



MOONSHINER?—R. J. Franczak sets up operation of new still added in GD/Astro clean room. "Revenoors" aren't interested, however. Still reclaims used freon solvent to save some $23,000 per year.

New Guided Missile Cruiser, Tartar Armed, to Join Fleet

USS Columbus (CG-12), new guided missile cruiser, will join the U. S. Fleet following traditional commissioning ceremonies at Puget Sound Naval Shipyard Dec. 1.

The Columbus is the second heavy cruiser to be completely converted to guided missiles. A sister ship, USS Albany, was commissioned Nov. 3 at Boston Naval Shipyard.

General Dynamics/Pomona-built Tartar missiles provide secondary armament for the Columbus. Talos missiles are the main battery and the ship is also equipped with anti-submarine rockets (ASROC).

G. E. Sylvester, vice president—operations, will represent General Dynamics Corporation at the Dec. 1 ceremonies. He will present a set of quarterdeck markers—scale models of Tartar missiles—to the Columbus on behalf of General Dynamics/Pomona.

When Columbus joins the fleet, the Navy will have a total of 36 ships armed with Advanced Terrier and Tartar missiles built by General Dynamics/Pomona.

Columbus (CG-12) was built as a heavy cruiser (CA-74) by Bethlehem Steel Company of Quincy, Mass. Her keel was laid June 28, 1943, and she was placed in commission June 8, 1945.

After service with both the Seventh and Sixth Fleets, the hull classification and number of Columbus were changed to CG-12, effective Nov. 30, 1959.

Three ships of the U. S. Navy have been named Columbus. The first two were named for Christopher Columbus, while the present Columbus is named for the city of Columbus, Ohio.

The first Columbus was purchased by the Continental Congress in 1775. Her original complement was 220 officers and men, including 60 Marines. The ship was armed with 24 guns and saw action during the Revolutionary War, capturing five prizes.

Difficulties in procuring equipment and men kept her in port most of 1777 and 1778. On April 1, 1778, she was chased ashore on Point Judith, R. I., by a British squadron and burned by her crew to prevent capture.

The second Columbus, a ship-of-the-line, was built by Washington Navy Yard and commissioned Nov. 29, 1819. The ship was 191 feet in length and had a complement of 780 officers and men.

On June 4, 1845, Columbus, then flagship of Commodore James Biddle, departed New York for the Far East. She was at Canton, China, on Dec. 31, 1845, when Commodore Biddle exchanged ratified copies of the first American commercial treaty with China. In April, 1846, Columbus sailed for Japan, arriving at Yedo (Tokyo) Bay July 19, in an attempt to open Japan to American commerce. Although this attempt was unsuccessful, it helped pave the way for the Perry Mission eight years later.

The second Columbus was laid up in ordinary at the Navy Yards, Norfolk, Va., and burned there April 20, 1861, to prevent her falling into the hands of the Confederates when the yard was evacuated by Union forces.

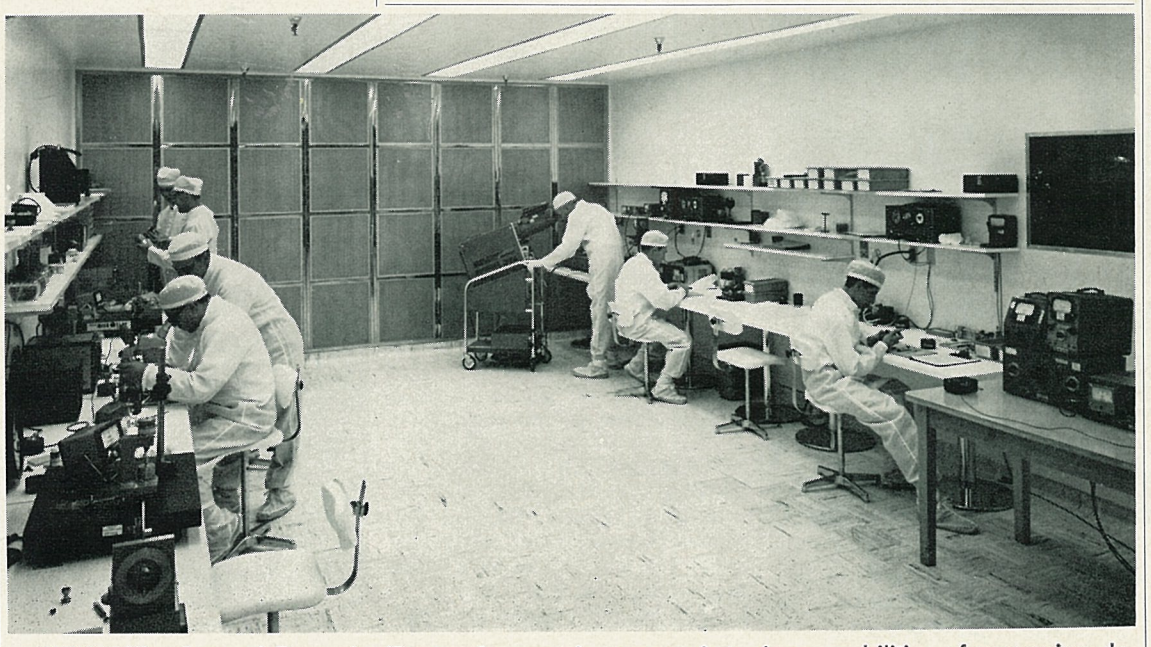
SAC Takes Over 12 More Atlas Sites at Dyess

DYESS AFB — Twelve Atlas "F" launch complexes and their service facilities were declared operational here Nov. 7 by the Strategic Air Command.

Which means that in less than two months, base activation forces from General Dynamics/Astronautics and associate contractors have completed and delivered 48 launch complexes, plus support facilities.

Schilling AFB facilities were delivered Sept. 13; Lincoln AFB units on Oct. 1; those at Altus AFB on Oct. 15; and those here at Dyess Nov. 8. Nearing completion are additional facilities at Walker AFB, N. M., and Plattsburgh AFB, N. Y.

No formal ceremonies were held here. Col. H. B. Manson, SATAF commander, passed along the facilities to Brig. Gen. W. W. Wisman, commander of the Strategic Air Command's 819th Strategic Aerospace Division. He, in turn, ordered members of the 578th Strategic Missile Squadron, commanded by Col. R. N. Cole, to take over on an operational basis. Complexes here are a part of the 15th Air Force, commanded by Lt. Gen. Archie J. Old Jr.



CLEANEST—General Dynamics/Pomona's new clean room is taxing capabilities of measuring devices to properly evaluate new facility. Room, placed in operation last month, is "200 times cleaner than conventional hospital surgical room."

Save Material—Don't Throw Your Job Away!

Lewis Research Center Given Responsibility for Centaur

National Aeronautics and Space Administration last month shifted project responsibility for General Dynamics/Astronautics' Centaur launch vehicle from the Marshall Space Flight Center, Huntsville, Ala., to NASA's Lewis Research Center, Cleveland, Ohio.

For two decades the nation's principal researcher for propulsion techniques, Lewis Center currently is engaged in extensive space technology efforts.

Recently, the center reorganized its scientific structure to embrace both research and development.

Teaming the Lewis Center and GD/Astro brings together two organizations that have pioneered in the development of liquid hydrogen and its application to launch vehicles. Lewis Center began hydrogen studies in 1950 and as early as 1953 test-fired a 5,000-lb.-thrust hydrogen engine. Centaur is the first launch vehicle slated to be powered by liquid hydrogen.

Organized in 1941-42, Lewis Center has long been regarded as the nation's most experienced facility for studies concerning aeronautics, nuclear, electrical and chemical power sources, as well as advanced ideas involving thermal and solar conversion systems.

While propulsion work continues, Lewis Center has been called upon to devote increasingly larger efforts to work associated with space technology. Its contributions in this field have been outstanding.

For instance, Project Mercury drew heavily on Lewis for help in design of solid fuel rockets and the rocket escape system used on Mercury spacecraft. Too, it designed, built and operated a unique "multiaxis test facility" to train astronauts in capsule control during tumbling periods.

Lewis Center provided information toward design of a 1.5-million-pound thrust engine for the Saturn vehicle, as well as other information related to "high energy" upper stages for this vehicle and other interplanetary probes like Centaur.

Nuclear development at Lewis helped perfect propellant system dynamics and nuclear engine components for Project Rover.

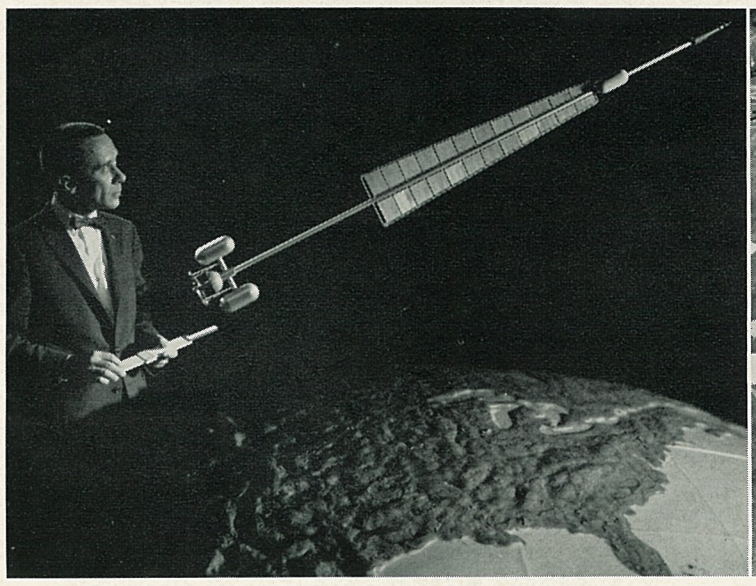
Among current programs are many related to Project Apollo. They include such investigations as zero gravity effects on propellant handling, meteoroid protection for tank structures, materials at cryogenic temperatures, propulsion system control, thrust chambers, nozzles and auxiliary power systems.

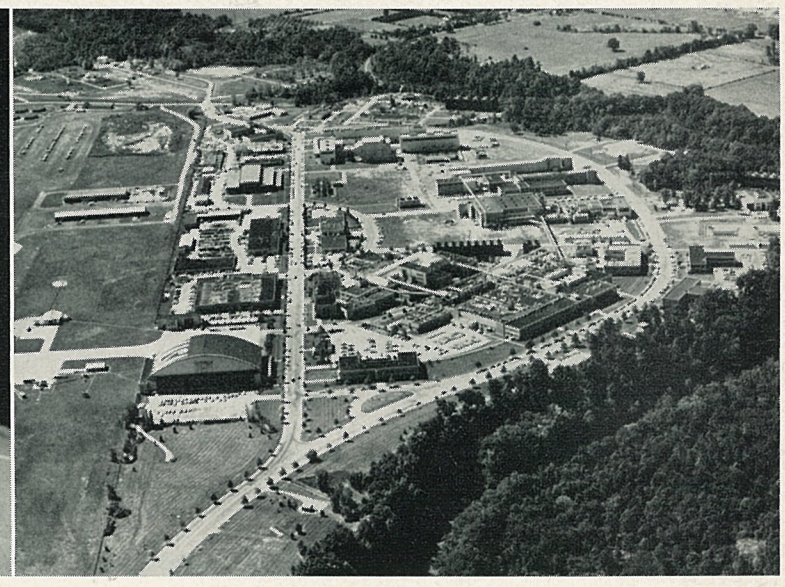
Employment at Lewis Center now exceeds 3,000, of which almost half are scientists and engineers.

The main Lewis Center laboratories are located on a 350-acre tract adjacent to Cleveland Hopkins Airport. At nearby Sandusky is the Plum Brook research station, a principal rocket test site and location of a full-scale nuclear research reactor.

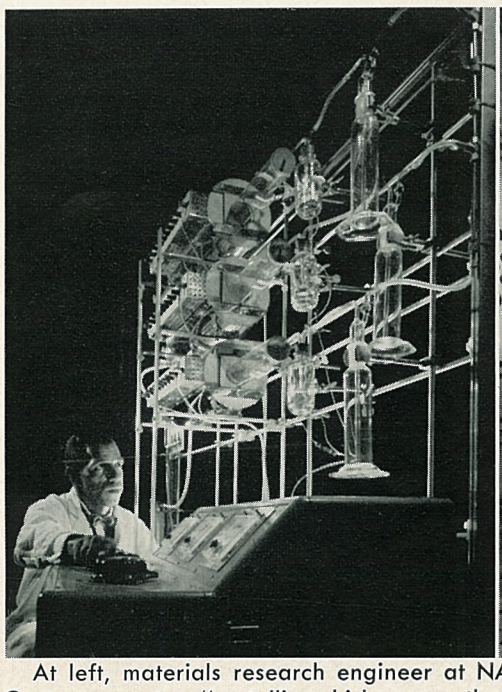
Lewis Center is currently in the midst of an extensive expansion program. Expected during fiscal 1963 is a $40-million construction program at Plum Brook to add nuclear rocket dynamics and hydrogen heat transfer facilities. A $4.7-million development engineering building is planned for the main center.

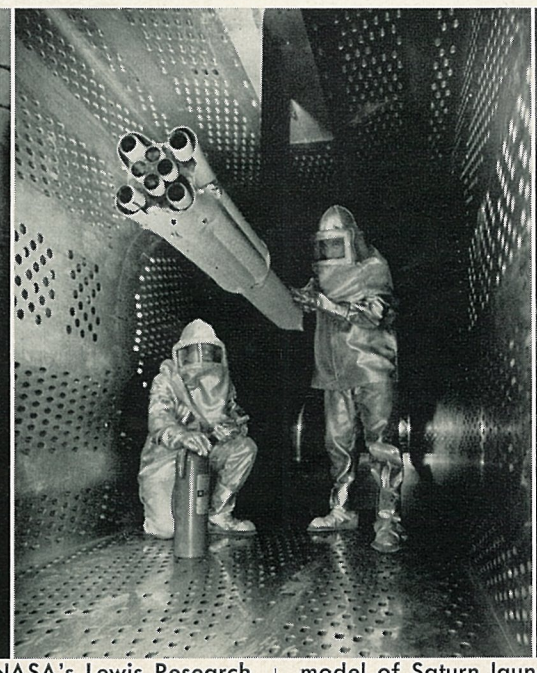
Of particular interest in the Plum Brook future is the proposed Space Propulsion Facility, part of the 1963 expansion. This will include a giant "space tank" capable of maintaining liquid hydrogen (minus 423°F) for two weeks to test engines, their ignition, control and restart capabilities under simulated space conditions (190 miles high). Or under less rigorous conditions, the tank could operate for 90 days and perform tests like "cold soak"—testing components after extended exposure to extreme environment.

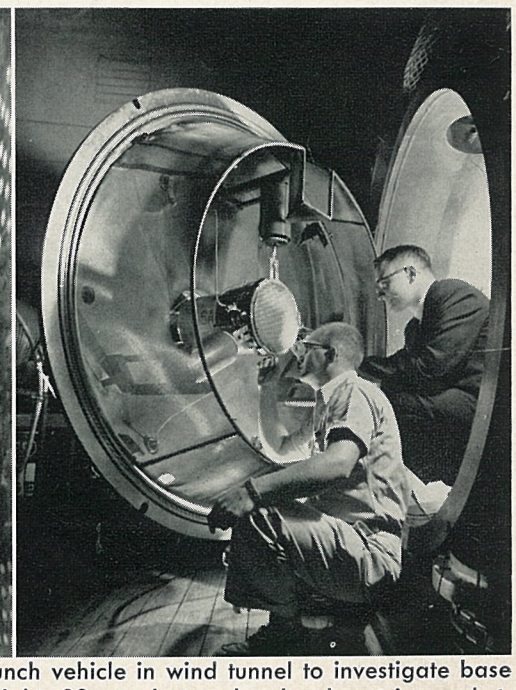




RESEARCH CENTER—Program responsibility for General Dynamics/Astronautics' Centaur launch vehicle recently was reassigned to NASA's Lewis Research Center, Cleveland, Ohio. Above right is air view of Center, located on 350-acre tract adjoining Cleveland Hopkins Airport. At left, striking photo shows Lewis' Electric Space Vehicle Model for Mars expedition.







At left, materials research engineer at NASA's Lewis Research Center operates "metallic whisker growth facility," part of research effort in space technology. Center: technicians check out model of Saturn launch vehicle in wind tunnel to investigate base heating problems. Right: 20 cm electron-bombardment ion rocket. Center has vast experience in aerospace propulsion techniques.

Wilson Heads GD/E Rochester As Gen. Manager

Richard A. Wilson, veteran of more than 30 years in the electronics industry, has been appointed vice president and general manager of General Dynamics/Electronics-Rochester, Charles F. Horne, president, announced this month.

Richard Wilson

Wilson's professional career has been devoted to organization and direction of research and development oriented companies.

He joins General Dynamics from General Mills, Inc., where he has served as vice president of that company's electronics group since 1959. He was responsible for establishing General Mills Electronics Group, an organization which employs more than 3,000 with major facilities in five localities.

Before that, he had been vice president of Daystrom, Inc., N. J., Magnavox Co., and vice president and director of Muzak Corp., N. Y.

After studying electrical engineering at Lowell Institute, Massachusetts Institute of Technology, Wilson began his electronics career in 1928 with Westinghouse. He later moved to RCA.

"FLYING" HIGH—Two new General Dynamics Corporation vice presidents, Edward H. Heinemann (engineering), seated, and Howard L. Richardson (Corporate planning), right, and Roger Lewis, General Dynamics president, third from right, were recent visitors to GD/Astronautics. Heinemann tries out "orbital vehicle rendezvous simulation unit" in computer lab. Astro men shown, from left, are President J. R. Dempsey, R. D. Horwitz, computer labs, and W. H. Patterson, vice president, advanced product planning.

Blood Donations For Girl Sought

Gwen Loya (Dept. 101-1) of GD/Astro is seeking volunteer blood donors, especially those with rare blood types, prior to time for open heart surgery for her daughter Theresa, 2, set for mid-January.

As an Astro employee, Gwen is entitled to a maximum use of blood on credit for Astro at the San Diego Blood Bank (this is donated by employees during bloodmobile visits to Astro. However, due to the nature of the surgery additional blood will be needed.

Theresa has type A-B negative blood, extremely rare. Donors may pledge either rare blood or the more common type to replace that required for Theresa.

Call Gwen at ext. 3647 or at home, 278-0859 after 5 p.m.

NASA Chief Speaker At Quality Meeting

Howard M. Weiss, chief of quality assurance, NASA Headquarters, was speaker at a General Dynamics/Astronautics-sponsored meeting of San Diego section, American Society for Quality Control, last week.

In a session moderated by P. I. Harr, GD/Astro director of reliability control, Weiss addressed more than 300 local chapter members and guests.

His remarks centered on NASA quality requirements for space system contractors, detailing features of quality system planning, subcontract requirements, quality verification and failure analysis.

Salvage Yards Set Another Schedule

Salvage yard schedule: GD/Convair—Nov. 24, Dec. 8.

GD/Astro—Dec. 1, 15.

Smaldino Winner Of Cruiser Drawing

John Smaldino of GD/Astro hit the jackpot when his lucky ticket was drawn, winning him the CRA 25-ft. cabin cruiser.

Lucky number was 1876 at the drawing held at the Nov. 5 CRA Council meeting, announced J. K. Field of GD/Convair employee services.

Smaldino, whose hobbies are fishing and skin diving, intends to keep the outfitted cruiser, valued at over $9,000. He now has the boat moored at Mission Bay Sportfishing landing.

He is located in Bldg. 51, Plant 1, with Astro Dept. 322-5, support publications.

Navy Reserve Pay Billets Available

Naval Reserve pay billets in Ship Supply Officer Division 11-2 at San Diego are now available for reserve Supply Corps officers in the rank of lieutenant and below, according to Lt. Cmdr. Bill Potts, division administrative officer.

Experience in shipboard supply or fleet support is desirable but not required. More information is available from Potts, GD/Astro ext. 1210, or Lt. Ralph Grant, ext. 1741.

Program Chapter Installs Officers

First annual installation of new officers for the San Diego Chapter of National Society for Programmed Instruction will be held next week, Nov. 29, at Miyako Restaurant, 2137 Pacific Highway.

Cocktail hour will be from 6:30 to 7:30 p.m., followed by dinner and installation ceremonies.

Members and their guests may make reservations at $3.50 each before this Friday (Nov. 23) by contacting J. D. Meacham, ext. 2249, GD/Convair Plant 1.

AT THE SHOW—In center photo are Charles Lewis, ARA club president, Phyllis Files, club secretary, and Mrs. Arnold Carroll with winners in CRA-ARA Flower Show. In photo at right are CRA Commissioner E. L. Zimmerman, Stella Dennis of GD/Convair, C. H. Splinter of GD/Astro, LeVonne Splinter of GD/Convair, and Dennis Zimmerman. Photo at left: Janice Zimmerman, 12, Sherril Files, 8, with winning entries. Fall show attracted total of 196 displays from Garden Club members; drew hundreds of spectators.

GD/Astro, GD/Convair Gardeners Share Honors in Flower Show

GD/Astro and GD/Convair exhibitors shared honors with their prize-winning blooms in the Nov. 4 joint CRA-ARA annual Fall Flower Show which drew hundreds of spectators to the Floral Association Bldg. in Balboa Park.

Garden club members from both divisions entered a total of 196 displays.

Best of show awards, and turkeys were evenly divided between Astro and Convair entries with CRA Commissioner E. L. Zimmerman taking top prize for his one-bloom large chrysanthemum. Stella Dennis of GD/Convair Dept. 401 swept the field with her three-bloom large chrysanthemum in her first display in any flower show.

LeVonne Splinter, GD/Convair Dept. 2, won best of show for her pompon chrysanthemum; C. H. Splinter, GD/Astro Dept. 759, for a button mum entry. Dennis Zimmerman, 17, was best of show in arrangements with his unique display of a horse-drawn cart filled with succulents, palms, and red berries.

Jean Henderson, wife of ARA Commissioner Everett Henderson, was best of show in corsage division; C. J. Lewis of GD/Astro Dept. 250 and ARA club president, best of show in roses. Sherril Files, 8-year-old daughter of Phyllis Files of GD/Astro Dept. 951-3, topped the children's division.

Judging chrysanthemums were James Kirk, Sam Middleton, Al O'Blennes. Kirk, O'Blennes, and Mrs. Jean Kenneally judged roses. Judging arrangements, corsages, and children's entries were Mrs. Kenneally, Mrs. Middleton, and Mrs. Kirk.

Other winners were: Chrysanthemums, single bloom, large—E. L. Zimmerman, GD/Convair Dept. 401-5, white; H. S. Boyd, GD/Convair Dept. 31, pink; Mr. and Mrs. A. W. Carroll, GD/Astro Dept. 141-2, red and bronze or orange; Zimmerman, yellow; Stella Dennis, GD/Convair 401, lavender or purple.

Three blooms, large — Zimmerman, white; Stella Dennis, pink, red, bronze or orange, lavender or purple; Dennis Zimmerman, yellow.

Cushion-type poms, three stems—LeVonne Splinter, GD/Convair Dept. 2, white, yellow; Mrs. F. A. Cary, GD/Convair Dept. 14-0, pink; C. H. Splinter, GD/Astro Dept. 759, bronze or orange; Phyllis Files, GD/Astro Dept. 951-3, red, lavender or purple.

Daisy-type poms, three stems—Splinter, red, yellow; LeVonne Splinter, bronze or orange; Phyllis Files, lavender or purple.

Button mums — one stem and three stems—LeVonne Splinter.

Roses—C. J. Lewis, GD/Astro Dept. 250, red, pink, white, orange; Margaret Boyd, yellow; Mrs. C. J. Lewis, Charlotte Armstrong; Mrs. A. W. Carroll, Peace rose.

Arrangements — Mrs. Carroll, miniature; Alberta Marvin, GD/Convair Dept. 220, small; Dennis Zimmerman, medium; Mrs. R. Cox, husband in GD/Astro Dept. 603, large; Harold Inman, GD/Convair Dept. 171, dry under 18-in. tall; Mrs. Carroll, dry over 18-in.

Corsages—Jean Henderson, orchids; D. McMillen, GD/Astro Dept. 144-2, chrysanthemums.

Children — Sherril Files, 5-11 years; Janice Zimmerman, 12-16 years.

Ice Skating Club Session Delayed

Because of the holiday, the joint ARA-CRA Ice Skating Club session will not be held tomorrow (Nov. 22).

At least two families, however, will have occasion to think of their club, as they dine on turkeys given as door prizes at the previous meeting.

The group's next scheduled activity will be Sunday (Nov. 25) with a field trip to Glacier Falls (Disneyland) for skating, 9 to 11:45 a.m. The rink will also be open to "dancers," 7 to 9 a.m.

Special discount tickets are available from ARA Commissioner Bud Davies, GD/Astro ext. 4041.

Davies has also announced plans to visit home ice hockey games of the Los Angeles Blades.

Clayton Breaks Fifty Straight

Sixty trapshooters vied for turkeys at CRA-ARA Gun Club's annual holiday shoot Nov. 4 at Gillespie Field Range.

George Clayton of GD/Convair was the only competitor to shoot 50 straight for high score and one of the Thanksgiving birds, said CRA Commissioner Jack Swank.

The other turkeys went to John Puhr of GD/Astro, Joe Vidovich of GD/Convair, and Kenny Faught, whose wife is at GD/Convair. The Lewis system was used in deciding prize winners.

Bob Beckett was the lucky winner of the turkey drawing for skeet and rifle shooters at the match.

Gunsmen will meet for their regular monthly shoot Sunday (Dec. 2) at the CRA range.

Archers Entering Annual Industrial Recreation Shoot

Archers from GD/Convair, GD/Electronics, and GD/Astro will take part in the annual Industrial Recreation Council archery tournament set for Sunday, Dec. 9.

Everyone intending to compete must register at employee services outlets by Dec. 3, said CRA Commissioner Al Phipps and ARA Commissioner Al Stone, in charge of tourney arrangements.

The Double American target shoot will start at 10 a.m. on the Morley Field Archery Range in Balboa Park. Scoring will be on a handicap basis.

First-place winner will receive a turkey; second-place, a chicken; and third-place, bacon. Trophies will go to winners in junior, intermediate, and amateur classes.

Bridge Lesson Series In Planning Stages

A series of bridge lessons for both beginning and advanced players is now in the planning stage, and will get under way in the near future, according to Art Saastad, ARA commissioner.

Good attendance at ARA Bridge Club's most recent meeting made two sections of play possible and also permitted eight full Master Point awards.

Winners were Bernie Anderson, Bruce Beach, Pat Devore, H. R. McCullough, Jim Moody, Leon Resnick, Saastad and Norma Tuttle. Winning Thanksgiving turkeys were Jack Christian and Wayne Evans.

The club now has 20 books on bridge available for loan.

Buy One Chargers Ticket And Kids Get in Free

"Family rates" for GD/Astro and GD/Convair folk will apply to tickets for remaining San Diego Chargers home games.

An employee buying one or more tickets for $3.50 each, will be given, without charge, tickets for all members of his family under the age of 16. All seats are reserved, and families will be seated together.

The Chargers play the the Oakland Raiders at Balboa Stadium Dec. 2, and meet the Boston Patriots Dec. 9.

At Convair, tickets will be available from 11 a.m. until 1:15 p.m., Nov. 26 (Monday) and Dec. 7 (Friday), and from 3:30 p.m. until 5:30 p.m., Nov. 30 (Friday) and Dec. 3 (Monday).

A mobile ticket-selling trailer will be stationed adjacent to the cafeteria near Overpass 1 for noon hour sales and will be at the parking lot near Overpass 2 for 3:30 and 5:30 p.m. sales.

Astronautics ticket sales will be from 11 a.m. to 1:15 p.m., Nov. 30 and Dec. 3, and from 3:30 to 5:30 p.m., Nov. 26 and Dec. 7, at employee services.

Employees at outlying points may obtain ticket application forms from employee services outlets.

Sons Will Play In Grid Benefit

One GD/Astronautics coach and probably a score or more of General Dynamics sons will be involved Nov. 24 when the first annual Heartland Pop Warner Football Benefit for Cerebral Palsy comes off at Las Mesa.

J. R. Rogers of Astro's Dept. 830 is coach of the La Mesa Pee Wee eleven that will meet El Paso in a game for 9-12 year-olds. Other games will pit the 10-14-year El Cajon Midgets against Fresno and the Lemon Grove Junior Bantams against Las Vegas in the 11-15 age brackets. In addition to age, weight plays a factor in league groupings.

Game time is 12:30 p.m. at Helix Hi Stadium.

In addition to the three championship games, entertainment will include stars such as Jerry Lewis, beauty queens, bands and sports figures.

Tickets will be available at the game or through Rogers at ext. 2023, Plant 2.

Lee Hanning (Dept. 810) and Harry Buckner (Dept. 101) are members of a special committee planning the event, while Ray Blair of Dept. 122 will be public address announcer.

Best Ball Tourney Ahead For Golfers

ARA will conduct a one-day best ball golf tournament at Circle "R" Sunday, Dec. 9, with starting times now available from ARA headquarters, ext. 1111.

Merchandise awards will be given in four events: two-man team net best ball, two-man team Calcutta (optional), driving contest, and close-to-pin contest.

Fee of $1.50 per person will be collected on tee for the best ball events. An additional 50 cent charge will be made for each Calcutta team.

Additional information is available from Dick Tobias, ARA commissioner, Plant 1 ext. 1707.

Best Prints, Slides To Be Chosen For '62

Judging to determine the best print and slide of 1962 will be conducted at a meeting of Astro Lens, ARA camera club, at 7:30 p.m., Dec. 2, in Photo Arts Bldg., Balboa Park.

All prints and slides placing in club contests during the year are eligible for the final judging.

Election of 1963 club officers will follow the contest.

Lake Elsinore Scene of Meet

Model enthusiasts gathering at the second annual Tri-Club Free Flight Model Plane meet hosted at Lake Elsinore Oct. 28 by GD/Convair Aeromodelers, GD/Astro Modelers, and San Diego Orbiteers were greeted by beautiful, warm, thermal soaring air.

Over 70 entries from San Diego and Los Angeles areas flew in 6 events for 18 trophies.

Many contestants, notably from Los Angeles, commented on the smooth and efficient way the meet was run. ARA and CRA provided the chase truck, processing tables and chairs, public address system, and stop watches. Everyone in the three host clubs pitched in to help process and time models.

General Dynamics winners included Bob Petro of GD/Astro, first in the Nordic glider event with a total time of over 13 minutes out of a possible 15. Nat Antonioli of GD/Convair was third in the same event.

Roland Dexter of General Atomic was first in the rubber-powered event and GD/Astro's Bob Davis placed in the gas-powered event.

CRA Aeromodelers now are laying plans for their February annual scale meet. Anyone interested is urged to contact Don Larsen, ext. 2289, or Larry Peterson, ext. 1477, both Plant 1.

.308 Deer Rifle Drawing Prize

Big game hunters have only a couple of weeks to enter their kills in the annual "Big Game" drawing.

First prize will be a Remington .308 deer rifle with other prizes covering a wide variety of hunting equipment, said CRA Commissioner Jack Swank.

Lucky winners will be decided at the regular Gun Club meeting Tuesday (Dec. 11) at Gillespie Field Clubhouse.

Until that date, GD/Convair, GD/Electronics, and GD/Astro nimrods may list their big animal bags at employee services at each division. So far, 60 entries have been registered.

Auto Authority Cards Updated

Transportation officials at General Dynamics/Astronautics are seeking help from department heads in updating signature authorization cards for use of company passenger vehicles.

Astronautics DSP 1-44-SPA #1 specifies, in brief, that only alternates authorized by department heads may request cars to conduct company business in the immediate San Diego area (bounded by Del Mar, El Cajon and Chula Vista).

John F. Speed, transportation general foreman, indicated that personnel shifts during creation of project organizations have made the majority of cards now on hand obsolete.

"We urge department heads to review their needs and present personnel and submit new signature authorization cards," Speed said. "In the near future we will have no alternative but to refuse cars to those not covered by current requests."

Department heads may submit signature authorization cards (Form A1545) to transportation, plant engineering department, mail zone 250-56.

Teen-Agers Xmas Guests

Emphasis will be on a different age group when ARA, Con-Trib-Club and Salvation Army again host needy youngsters at a Christmas party at GD/Astronautics this year.

At previous versions of the annual event, guests have been pre-teen-agers. This year, however, Salvation Army asked that attention be directed toward the teen-age group — frequently neglected at affairs of this sort.

Planners agreed, but are now faced with arranging a different sort of party. Tentative date is either Dec. 21 or 22.

The Astronautics party has become a tradition of the Christmas season, and consists of bringing about 150 youngsters to GD/Astro for lunch, entertainment, and gifts.

Con-Trib-Club provides funds for the party; ARA plans and stages it; while Salvation Army provides the guest list of needy children.

Mgt. Club Schedules Annual Tournament

Members of General Dynamics/Astronautics Management Club will gather at Rancho Bernardo Country Club Dec. 16 for the third annual club golf championship tournament.

Prospective foursomes should be listed on a flyer now being distributed to all club members. The flyer should be returned to A. C. King, Dept. 641-10.

King will assign starting times from 7 a.m., on a first-come, first-served basis. Greens fees are $4.25, of which 50 cents will be used for additional prizes.

Home Decorations Subject For Wives

Personalized home decorating will set the theme for a special meeting of Astro Wives' Auxiliary at 10 a.m., Nov. 28 in ARA Clubhouse.

Speaker will be Blanche Brown of Barker Bros., whose topic will be "Decorating to the Personality of the Lady of the House." A question and answer period will follow.

The session will conclude with a potluck luncheon. Those attending have been asked to bring a covered dish plus their own table service.

TEEN CLUB DANCE SCHEDULE SET

ARA Teen Club's dance scheduled Dec. 1 has been cancelled to permit use of ARA Clubhouse auditorium for Astro Players presentation of "Roman Candle." Next Teen Club event will be Dec. 15.

Sports & Recreation

Lots of Laughs Pledged As 'Roman Candle' Opens For Run of Five Nights

Missiles, the military, "second sight," and lots of laughs sums up the substance of "Roman Candle," Astro Players' current production opening in ARA Clubhouse auditorium tomorrow (Nov. 22) at 8:30 p.m.

Additional performances of the three-act comedy by Sidney Sheldon will be presented Nov. 23, 24, 29, 30 and Dec. 1.

Produced by Pat Givens and Pauline Middleton, and directed by John Cone, the play concerns the shaky rise to fame of a missile "expert." In its course, it manages to spoof practically everything—politics, the armed forces, extra sensory perception—and stir in a generous helping of romance for good measure.

In leading roles are Astro's Dan McLaughlin and Joyce Crawford, supported by Joe Tricoli, Al Varon, Shirley McLaughlin, Charles Shoemake, Julius Rose, Dick Crawford and Annabel Audet. Special guest performers are Ron Shapiro and Charles Cook.

"This show represents lots of hard work by many talented persons, not only members of the cast, but others who have labored faithfully behind the scenes," said ARA Commissioner Jack Garrison.

"We believe the audience will share in the fun we've had when they see the play."

Tickets for all performances are now on sale at all employee services outlets. Donation is $1 for adults; 50 cents for children.

Free refreshments will be served during intermissions.

FORECAST—Cast of "Roman Candle" hams it up as play's "doctor" (Al Varon) checks pulse of show's co-producer Pauline Middleton. Onlookers are Chuck Shoemake, Joyce Crawford, Dan McLaughlin, Joe Tricoli, Shirley McLaughlin.

Arts, Crafts Club Building Workshop

A brief meeting, with a Thanksgiving turkey as door prize, will be held at 6:30 p.m. today (Nov. 21) in ARA Clubhouse by Arts and Crafts Club.

Plans for the club's workshop-studio, now under construction in ARA Area, will be discussed. The group under Commissioner D. A. George, is open to all GD/Astro employees and dependents interested in such creative hobbies as painting, cartooning, sculpture, ceramics, etc.

Additional information is available from ARA Headquarters, ext. 1111.

Astro Notes Plan Xmas Caroling

Astro Notes, ARA choral group, has announced plans for caroling at five San Diego hospitals during the Christmas season, plus tentative arrangements for a performance at Sun City.

The group, now seeking additional members in all voice ranges, meets for rehearsals every Monday at 7:30 p.m. in ARA Clubhouse.

Williams and Jungk Take Home Turkeys

Taking home ARA Pistol Club Thanksgiving birds in a special Turkey Shoot were Mort Williams and Bill Jungk. In a Camp Perry Police Course match, master class leaders were Ronnie Legg with 293 of a possible 300 points, and Ralph Sanderlin with 290.

Other top scorers were Don Smock, 284, and Angrim Carlson, 272, expert class; Don Hale, 269, and John Bennett, 259, sharpshooter class; and Dave Moss, 257, and Ralph Jungk, 243, among the marksmen.

Legg also led master class contenders in a center fire Short National Course with 272, while Bill Geopfarth was in second place with 264.

Expert class leaders in this series were Smock, 244, and Carlson, 233, while Les Vivian fired 199 and R. Cunningham, 195, in the sharpshooter bracket.

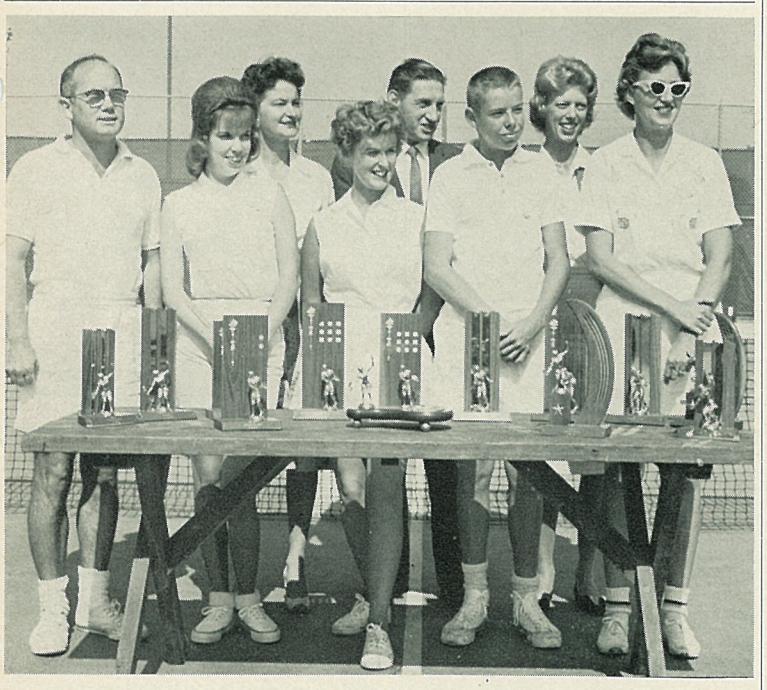
Marksman Moss fired 113.

GD/Astro Men Active In Junior Football

A team coached by GD/Astro employee H. J. Mahler, Dept. 146, will represent Southern California in Pop Warner Football's "Silver Dollar Bowl" at Las Vegas next weekend (Nov. 24-25).

Mahler's team, the Kearny Mesa "Astros," became San Diego's top ranking Bantam squad in their first season and faced an All-Star team of top players from 25 Southwestern units in the Nevada event.

"Astros" is one of several junior teams sponsored by the Kearny Mesa Pop Warner Association headed by A. E. Delos, GD/Astro Dept. 250. Assisting in coaching capacities are employees Bud Donahoo, Dept. 500; Bob Tilly, Dept. 454; Don Hulch, Dept. 591; and Bill Yeager, Dept. 222.



PAYOFF—Trophy winners in GD/Astro plant championship tennis tournament are (left to right) Carl Shuler, Rita Johnson, Flora Cannau, Betty Shuler, John Cannau, plant champion, Dave Bennett, Frances McBride and Ruth Bennett. Not shown are Larry Chambers, Charles Felker and Ben Cendali, ARA commissioner.

Astro Fishermen Plan Salton Trip

Salton City Marina at Salton Sea will be the destination of ARA Fishing Club members this weekend (Nov. 24-25).

Field trip agenda will stress group use of facilities available in the area, plus a fish fry Saturday evening.

The Marina has rental boats and motors, a launching ramp, camp ground, and motels. Groceries and bait are available for purchase.

Trip details are available from Ed Strange, ext. 1350; Jim Lawyer, ext. 3081; and George Scott, ext. 1361. Registration will be coordinated by ARA Commissioner T. B. Field, ext. 3284.

Music Fans Invited To Movie Showing

A motion picture of interest to all music enthusiasts will be shown under sponsorship of ARA Hi-Fi/Music Club at 7:30 p.m., Nov. 27 and 28 in ARA Clubhouse.

Featured will be "Tonight We Sing," the story of impresario Sol Huroc, which includes performances by Ezio Pinza, Roberta Peters, Tamara Toumanova and Isaac Stern.

Bargain admission is 50 cents per person. The showings are open to all General Dynamics employees and their families.

Arnold Carroll New Garden President

Arnold Carroll (Dept. 141) heads a new slate of officers elected by the Astro Garden Club at its recent meeting. Named vice president was Charles Splinter (Dept. 759), while Phyllis Files (Dept. 951) was elected secretary.

Plans for a Dec. 5 Christmas party at ARA Clubhouse (7:30 p.m.) were also formulated by the club. The event will feature games, door prizes, bingo, refreshments, movies and a visit from Santa Claus. Nine Christmas turkeys will be distributed.

Those taking part will bring a gift, valued at not over $1.

Sections of Dept. 322 Schedule Carnival

Employees of GD/Astro Dept. 322-5 and 322-6 will hold a semi-formal Christmas Carnival Dec. 7 at Pt. Loma Inn, with dancing from 9 p.m. to 1 a.m.

Dance committee of Jeanne Wilson, W. G. Stewart, Ted Thomas, Brenda Freed, Herb Leidle and Mary Lobello have arranged free refreshments, door prizes and entertainment.

Tickets at $2.75 per person are available from Brenda, Plant 2 ext. 660, or Jeanne, Plant 2 ext. 1002.

ARA Calendar

(GD/Astronautics Recreation Association has some 40 activities in operation for employees. For information, call ARA Headquarters, ext. 1111.)

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ARTS & CRAFTS — Meeting 6:30 p.m. today (Nov. 21) in ARA Clubhouse. Turkey door prize.

ASTRO LENS — Final print and slide competition, 7:30 p.m., Dec. 2, Photo Arts Bldg., Balboa Park.

BOWLING — Plant Championships, Clairemont Bowl, Dec. 1, 2, 8, 9. Applications at employee services outlets.

BRIDGE—Duplicate play 7:30 p.m., Thursday, ARA Clubhouse.

CHORUS — Astro Notes rehearse 7:30 p.m., Mondays, ARA Clubhouse. Seeking new members to participate in caroling at hospitals.

FISHING — Salton Sea trip Nov. 24-25. Register with T. B. Field, ext. 3284.

GARDEN CLUB — Christmas party, 7:30 p.m., Dec. 5, ARA Clubhouse.

GOLF—Best Ball Tournament, Circle "R," Dec. 9. Starting times from ARA Headquarters, ext. 1111.

HI-FI/MUSIC — Movie "Tonight We Sing," 7:30 p.m., Nov. 27 and 28, ARA Clubhouse. Admission 50 cents per person.

ICE SKATING — Trip to Glacier Falls (Disneyland), Nov. 25. Details from Bud Davies, ext. 4041.

RADIO — Meeting today (Nov. 21), 7:30 p.m., ARA Clubhouse. Speaker is A. H. Roshon, NEL.

RUGBY — ARA Varsity team now forming. Details from Ray Mendoza, ext. 1111.

SINGLES — Dance at Kennedy's Aztec Steak House, Pacific Beach, 9 p.m., Nov. 24.

THEATER — Astro Players comedy "Roman Candle," 8:30 p.m., Nov. 22, 23, 24, 29, 30, Dec. 1, ARA Clubhouse auditorium. Tickets at employee services.

Bowl Tourney Dates Chosen

Event of the year for GD/Astro bowlers, ARA's fifth annual Plant Championship Bowling Tournament, will be held Dec. 1, 2, 8 and 9 at Clairemont Bowl with entries now being accepted.

Bowlers will vie for trophies for Astro's leading team, men's and women's singles and doubles.

Applications are available from ARA bowling directors, at bowling houses, employee services outlets, and ARA Headquarters, ext. 1111.

The meet will also be used to select the leading men's and women's teams to represent ARA in a telephonic tournament slated in conjunction with the National Industrial Recreation Association western region conference in February.

NEL Man Will Speak On North Pole Trip

An illustrated talk on a trip under the North Pole will highlight a 7:30 p.m. meeting today (Nov. 21) of the Astro Radio Club slated for the ARA Clubhouse.

Arthur H. Roshon (W65YA) of the Naval Electronics Laboratory will be guest speaker. He will discuss his trip made as part of his job of sonar research and development at NEL.

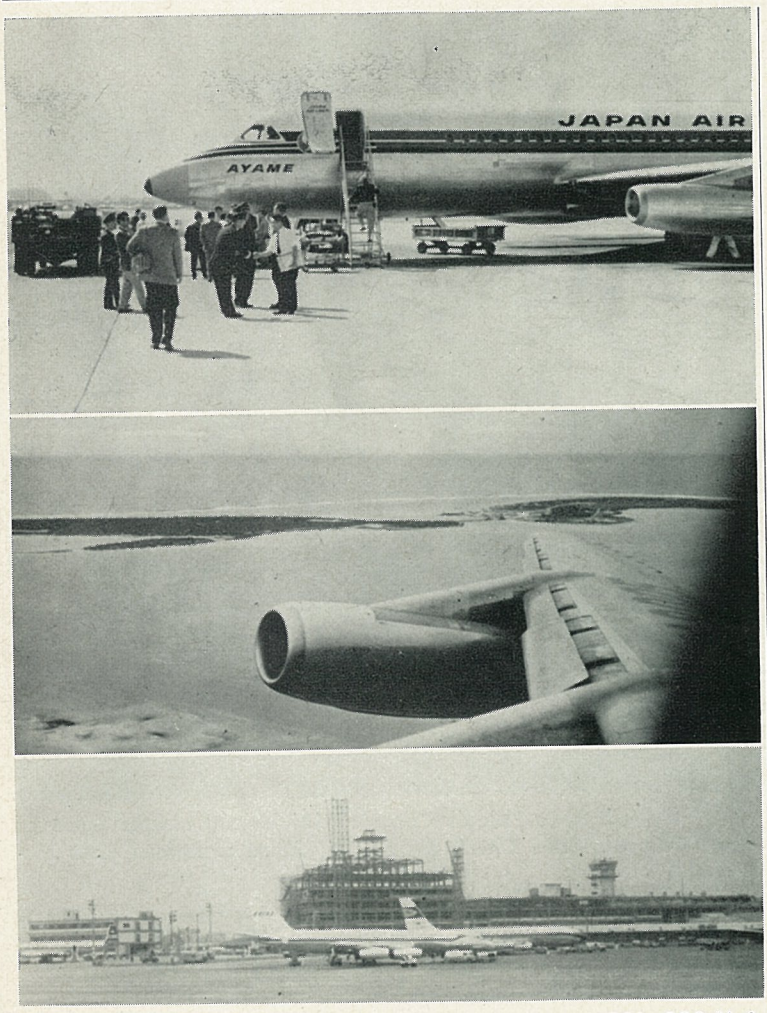
Mgt. Club to Sponsor Fall Tennis Tourney

Astronautics Management Club's Tennis Association has announced plans for a fall tournament Dec. 1-2 at Morley Field and Dec. 8-9 (finals) at ARA's Recreation Area.

Doubles and singles events will be held with players seeded into beginning and advanced groups. Entry fee is $1 per event and the entry deadline is Nov. 26.

Activity chairman C. E. Shuler, ext. 3081, will provide details.

MANY HOURS—Bryan Weickersheimmer, ARA president, helps Laverne Vlachos try on new jacket signifying 100 hours devoted to building ARA Recreation Area. From left, Dixie Flora, Ardelle Sorkness, Marty Stutz, Garnet Forquer, Fran Thompson, Dixie Husted, Martha Buchan, Fred Baugh and Mel Goolsby.



HOMEWARD BOUND—At top, Japan Air Lines' fifth 880-M is snapped at San Francisco airport just before leaving stateside on its ferry flight to Tokyo home base; center shot shows chain of Hawaiian Islands in sharp detail below pod of 880-M; in lower photo is SAS-Thai International 990 silhouetted against new Tokyo air terminal now under construction.

Another GD/FW Team Goes to Sea To Watch Navy Jet Operations

Day - and - night operations of swift, carrier-based jets were observed firsthand recently by key General Dynamics/Fort Worth people.

Purpose of visits aboard the USS Independence was to give GD/FW personnel a "realistic knowledge of how the Navy handles modern jets from its latest-type carriers."

The Independence, powered by conventional means, is sister ship to the nuclear-powered USS Enterprise.

"I'd say the trip provided invaluable knowledge," said J. D. McEachern, superintendent of development field operations, who, along with R. W. McGuffee, development manager, toured five days aboard the Independence.

"We observed a group of Navy pilots going through a familiarization course with a new type of jet aircraft, a night-and-day operation."

Earlier, a nine-man contingent of GD/FW engineers spent three days aboard the Independence.

They were: Bob Moller, project engineer; O. R. Batchelder, group engineer; J. R. Vaughn, design group engineer; D. C. Wilson, design group engineer; T. E. Collins, aerosystems group engineer; R. N. Hale, senior product support engineer; M. M. Alexander, senior structures engineer; E. E. Hile, senior design group engineer; and R. H. Dietz, senior aerosystems design engineer.

Last summer, a team of top executives from GD / FW and Grumman Aircraft made a three-day observation trip on the USS Constellation.

The team included: Frank W. Davis, GD/FW president; J. T. Cosby, GD / FW vice president-TFX program director; Dick Johnson, GD / FW manager of flight; H. B. Henderson, GD Washington office; and Gordon H. Ochenrider of Grumman Aircraft Engineering Corp.

NAVAL CONFERENCE—R. W. McGuffee, development manager, and J. D. McEachern, superintendent development field operations, discuss aerial operations aboard USS Independence with Captain L. V. Swanson, right, and Commander W. Robinson.

Observer Home From Airline Survey Reports Convair Jetliners Tops

Reliability of Convair jetliners is hitting new highs after more than a year of strenuous operation with Far East lines, reports R. L. Runnalls, GD/Convair airline performance engineer, following a recent customer survey.

Runnalls recently returned from his second inspection of Japan Air Lines and Civil Air Transport of Formosa to observe personally how well 880-Ms are serving after a full year behind them. He also visited Cathay Pacific Airlines at Hong Kong for his first contact since the line placed an 880-M in service early this spring.

His first inspection of 880-M operations abroad was made late last year shortly after JAL and CAT had put Convair-built jet transports into service.

Findings of his initial tour were repeated down the line, even more emphatically than before.

"JAL is continuing to express endorsement of the 880-M as highly as during the 1961 trip.

"Airplane reliability is steadily increasing with additional experience of maintenance personnel. The flight crews are unanimous in their praise of the airplane, and, if I could cross the language barrier, I am positive that I would find that the Asian public likes the airplane very much.

"The Japanese consistently ride the 880-M in great numbers into and out of Tokyo. It will be interesting to observe the load factor history during the next year on the new Tokyo to London JAL 880-M route, which began early in October. This route has many intermediate stops and tremendous competition."

In Formosa he found that CAT has "nothing but admiration and praise for its 880-M."

"The flight crew proficiency, as noted during my jump-seat ride from Tokyo to Taipei, was as good as I have ever witnessed.

"The exterior and interior condition of the CAT 880-M continues to challenge search for superlatives. You can comb your hair in the reflection of all unpainted exterior surfaces. The huge dragon on the fuselage is still chasing the fiery sugar plum as brilliantly as the day he was born in San Diego!"

Cathay Pacific is smoothly moving toward an excellent operational picture with its 880-M, was Runnalls' observation from Hong Kong.

"Here is a group that shows excellent knowledge of their 880-M, does a fine job of flight operations, and is eager to learn more about everything pertaining to the plane."

A sidelight from Hawaiian Airlines, contacted en route home, disclosed that the line is operating a fleet of six Convair 440s—all in excellent condition. Average airframe time is just under 20,000 hours and HAL claims the 440 is the most economical airplane available for its type of route structure.

Summarizing, Runnalls said, "The experience of our customers with our products in the field and the ready endorsements they give was the real bonus of this trip.

"The continued fine record of Convair's planes all over the Orient is to the credit of the people who make up the GD/Convair team.

"From the PBY-5A seen in takeoff at Taipei, to the busy North Japan Airlines' 240s at Tokyo, the tireless 440s shuttling the Hawaiian chain, to the JAL, CAT, CPA fleet of 880-Ms serving the entire Orient and the impressive Swissair and Thai 990s at Tokyo, Taipei, and Hong Kong, one can't help get the feeling that we build the best airplanes in the world at GD/Convair!"

Jet Customers Attend Review On Reliability

Three General Dynamics/Convair men traveled to Cincinnati, Ohio, early this month to attend the second annual General Electric-GD/Convair 880/990 customers' review of operations during the past year.

Discussion centered on engine reliability, and performance and overhaul procedures.

L. J. Bordelon, chief of service engineering: R. L. Runnalls of engineering flight test; and W. F. Helmich of thermodynamics engineering were among the 50 present at the Nov. 5-7 meeting.

Airlines operating Convair-built jetliners represented were TWA, Delta Airlines, Japan Air Lines, Northeast Airlines, Swissair, American Airlines, Alaska Airlines.

Runnalls continued on to the East Coast to witness an FAA demonstration of a newly-developed runway arresting barrier system for commercial transports. Over 200 from airlines and the aircraft industry observed the demonstration Nov. 8 at the National Aviation Facilities Experimental Center, Atlantic City, N. J.

Divisions to Close For Thanksgiving

All General Dynamics people will be observing Thanksgiving Day tomorrow (Nov. 22).

Divisions will close for the one-day observance. Only those persons necessary for essential maintenance and industrial security functions will be required to work on the holiday.

Work will resume at the regular shift times Friday, Nov. 23.

GD/FW Mates Hustler Converted to Trainer

Mating of the modified nose section and fuselage of Hustler No. 4—one of three former test Hustlers now being converted to trainer planes—was carried out on schedule Nov. 6 at General Dynamics/Fort Worth.

"Other trainer-bomber work in the TB Area in the 200-foot bay area also is going along on schedule," said J. B. Seaberry, modernization superintendent.

Completion of installation and final-assembly operations on No. 4 is expected by mid-January, when the plane is slated to go to systems operations.

After installation of electronic systems and operations, the trainer will be delivered to development field operations. Tentative delivery date to Air Force is sometime in April.

Test Hustlers Nos. 3 and 2, which entered the conversion program Sept. 2 and Oct. 1, respectively, are now undergoing nose and fuselage modifications.

Tentatively, No. 3 is scheduled for delivery in mid-May, while No. 2 is scheduled to go in mid-June.

"The 90 departments are performing modernization, supported by factory departments," said Seaberry.

"Systems modification is being performed by Dept. 75, with field operations support from Dept. 63."

These trainers will join four others now in service with SAC B-58 combat wings—the 43rd at Carswell AFB and the 305th at Bunker Hill AFB.

Dynamics Leaders To Present Papers At Coast Symposium

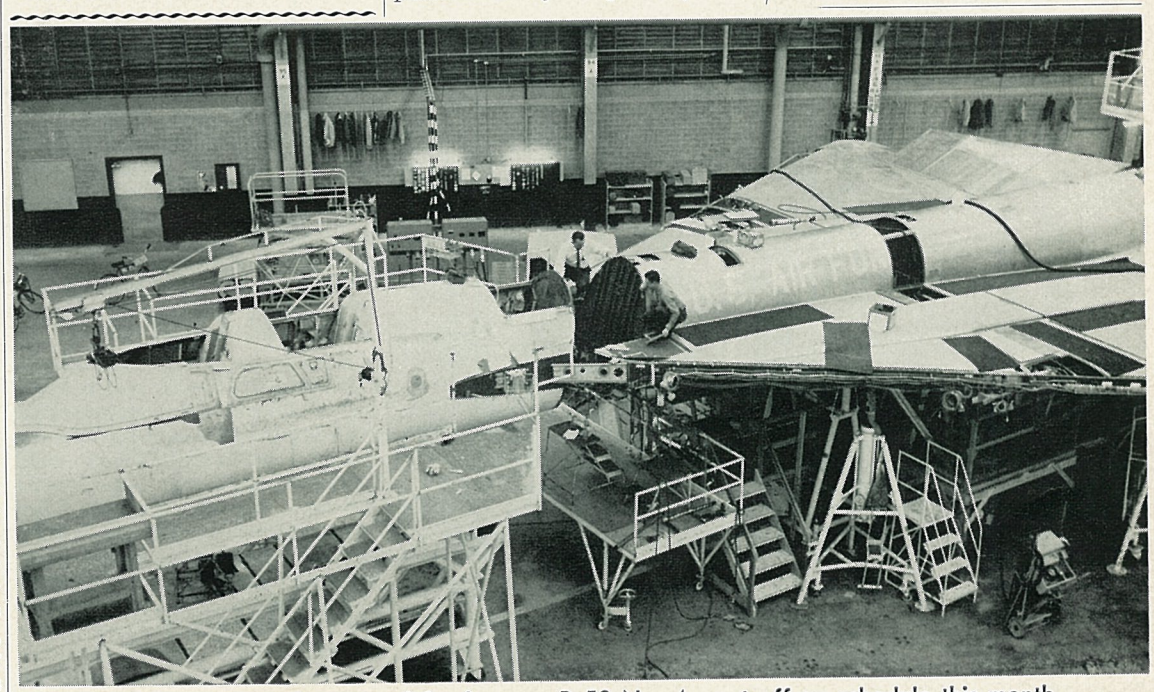
Among papers already accepted for presentation at the Ninth National Symposium on Reliability and Quality Control is one prepared jointly by J. Y. McClure and E. S. Winlund.

McClure is General Dynamics Corporation director of reliability and quality control. Winlund is GD/Astronautics manager of reliability control engineering.

The symposium will be held Jan. 22, 23 and 24 at San Francisco, marking the first occasion it has been held on the West Coast.

McClure will present a paper titled "Design Review, a Philosophy Survey and Policy."

Other papers prepared by Corporation individuals are also expected to be accepted at a later date.



TOGETHER—Mating of nose and fuselage on B-58 No. 4 went off on schedule this month.

GD
ASTRONAUTICS EDITION
(OFF-SITE)

GENERAL DYNAMICS NEWS

Vol. 15, No. 25 PUBLISHED BY GENERAL DYNAMICS CORPORATION 62 Wednesday, December 5, 1962

JOURNEYMEN—Graduates of GD/Astro's first apprentice class are shown with Vice President E. D. Bryant, standing left, and Richard Johnson, committee secretary, right. New journeymen are (seated) Ted Sisk, left, Jeff Hughes, and Don Lightfoot. Standing are Dennis Hoefs, Richard Scharfenberg, Bill Johnson, and Lawrence Lutzke.

First Apprentice Class At GD/Astro Graduates

Seven select General Dynamics/Astronautics men last month climaxed four years' study when they were graduated as members of the first class to complete GD/Astro's apprenticeship program.

Receiving diplomas from Elwood D. Bryant, vice president-operations, were Jeffrey Hughes, William E. Johnson, Dennis R. Hoefs, Lawrence R. Lutzke, and Richard G. Scharfenberg, all tool and die (Dept. 452) apprentices; Donald Lightfoot and Terence Sisk, jig bore machinist apprentices of production machine shop (Dept. 731).

For each, the brief ceremony ended an intensive training period amounting to over 8,000-hours' instruction. This included on-the-job training at GD/Astro; courses at San Diego City College; plus additional college training on their own time.

For four of the new journeymen, formal training will not end with completion of the program. Lutzke, Scharfenberg, Lightfoot and Sisk have announced intentions to continue study toward engineering degrees.

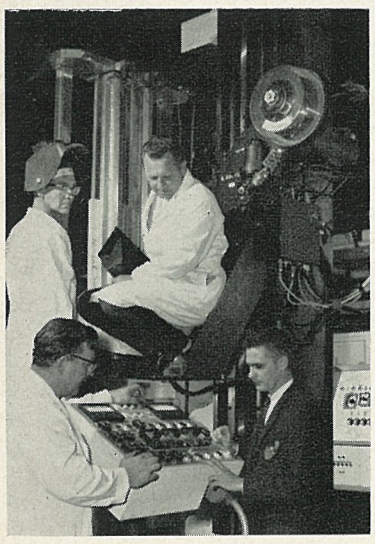
"What you have learned is not only a 'job,' but an attitude toward your work—a new approach to anything you undertake," Bryant told the graduates.

To Scharfenberg went the International Association of Machinists award for outstanding apprenticeship. He received a trophy presented by Tom Clovis, IAM representative on GD/Astro's apprenticeship committee.

The committee is headed by J. A. Croft, chief of educational services, with Vince Martin, co-chairman. Other members are W. T. Herchold, M. A. Stutz, Clovis, Richard Johnson (secretary), and Al Baffone (financial secretary).

Committee advisers at the ceremony included Ralph Lepore, California state apprenticeship consultant, and Ken Fawcett, San Diego City College.

Major Astro Welding Functions Centralized For Coordination



MODERN METHOD — New Linde "Missile Maker," set up for automatic aluminum welding by technicians R. M. Allen and Clay Whitfield (above) is in one of three labs operated by GD/Astro's Welding Technology Center. Below, Engineer Bob Manary (left) discusses device with Supervisor E. R. Foor.

A unique centralized authority for major welding functions throughout General Dynamics/Astronautics is now in operation, following its establishment earlier this year.

The new organization, known as Welding Technology Center (Dept. 290-4), is part of production engineering's applied manufacturing research and process development, V. G. Mellquist, chief.

Center responsibilities, under Supervisor E. R. Foor, include welding requirements, standards, reference and control specifications, information and assistance to other departments.

"When the Center was set up, we found there were 21 individual GD/Astro departments involved in welding operations," Foor said. "Designers were using specifications based on welding specimens produced by several departments."

Now these widely scattered welding functions have been drawn together under the Center's control. Result is improved product reliability, and more effi-

(Continued on Page 2)

Gift Wrappers To Gather For Annual Party

General Dynamics/Astronautics folk will stage their fourth annual Christmas party for needy children at ARA Clubhouse Dec. 22 between 5 and 8 p.m.

This traditional fete will find 150 of the area's needy youngsters between the ages of 12 and 16 on hand. They will be fed, entertained and presented with gifts, including clothing. For many it will be their only chance for a bountiful Christmas.

This year's affair is somewhat different in that children attending will be older. Decision to handle this group came after the Salvation Army indicated needy children in this age bracket are usually overlooked in favor of those younger.

As usual, this is a joint effort involving many groups. Con-Trib-Club provides funds for gifts and the party. Salvation Army selects the needy children and helps administer the effort. ARA is responsible for staging the party with the help of volunteers. Prophet Co., Davidson Brothers and firms who supply them provide, prepare and serve food and special gifts. Even some departments elect to give funds for additional gifts at this time. Shouldering a brunt of the effort is ARA's Wives Auxiliary.

Astro employees desiring to lend a hand will have two opportunities. Several hundred gifts must be wrapped and tagged for each youngster. This is to be accomplished at 7 p.m. Dec. 17 (Monday) in the ARA Clubhouse. Those who wish to participate may join the ARA Employees' Council and the wives of members in this endeavor.

On Dec. 22 more help will be needed to actually stage the party, including cars for picking up and taking home those scheduled to take part.

Jean Bryan, AT-1-0856, is coordinating the effort and will make specific assignments for those wishing to participate.

New Switchboard Hours in Effect

Telephone switchboards at General Dynamics/Astronautics are now open from 7 a.m. until 9 p.m., Monday through Saturday.

Multi-Million TFX Contract Won by GD/FW

A herculean effort on the part of General Dynamics/Fort Worth, teamed with Grumman Aircraft Engineering Corp., to obtain the contract for the TFX bi-service fighter met with success late last month.

The story made big black headlines in Fort Worth, of course, but it was page one news in many other cities as well, reflecting not only the importance of the business itself but also the wide public interest in the fortunes of General Dynamics.

Pride of accomplishment within the General Dynamics family was naturally greatest at Fort Worth, but it was widely shared at other divisions, even though vicariously.

Commenting on the long, nerve-wracking effort that stretched over many months during which the GD/FW — Grumman team faced rivals of awesome caliber, GD/FW President Frank Davis said:

"Never before has industry been called upon to put such effort into the preparation of a proposal, and never before has competition been keener."

According to the Department of Defense, full details of the magnitude and cost of the program are subject to negotiation.

"However, it will be a multi-million-dollar program, and will surpass any fighter program since World War II in both numbers and dollars," the DOD statement continued.

TFX, to be designated F-111A for Air Force use and F-111B by the Navy, will have a variable sweep wing which will extend and retract during different phases of flight. This will provide maximum lift throughout the fighter's entire speed range.

With a ferry range of about 3,000 nautical miles, TFX is to have a top speed of about two-and-one-half times the speed of sound, including supersonic speed at sea level.

According to DOD announcements, it will be able to fly anywhere in the world in one day, and will be capable of carrying all conventional and nuclear weapons, including the latest air-to-surface and air-to-air tactical weapons and systems.

The plane is designed for short takeoff from rough airfields in forward areas, and will also have a short-landing capability. It will have a gross weight of about 60,000 lbs. and be able to attain altitudes of over 60,000 feet.

The two-man tactical fighter will be powered by two Pratt and Whitney JTF-10A-20 turbo-fan engines.

"Determination of the prime contractor followed a most thorough and detailed evaluation," said the DOD announcement.

"The evaluation weighed both proposals in the light of design, performance characteristics, size and weight of aircraft, other technical characteristics, operational advantages and management and cost factors."

Hours after its selection as prime contractor was announced, a new TFX project organization (part of the TFX proposal) swung into action at GD/FW under J. T. Cosby, vice president and program director.

Other members of the successful GD/FW-Grumman team include Pratt and Whitney, Litton Industries, McDonnell Aircraft Corporation, General Electric Company.

Cooper Tabbed Atlas Pilot

Astronaut L. Gordon Cooper has been tabbed by NASA to pilot the next Atlas-boosted Mercury spacecraft on an extended flight tentatively slated for next April.

Present plans call for the flight to continue for approximately a full day, making it the longest manned flight attempted by the United States. It will be the sixth manned flight. Three previous orbital flights and two suborbital flights have been made, with the former powered by Atlas launch vehicles.

April has been selected as the time for the flight because unfavorable weather often hampers Cape Canaveral operations during the first quarter of the year.

Writing Award Fund Created For GD/Astro Magazine Authors

Payments of up to $150 for published articles are possible to employees taking part in a General Dynamics/Astronautics Writing Award Fund program just established by President J. R. Dempsey.

Purpose of the fund is to encourage employees to prepare articles for dissemination in trade and technical publications. Dempsey has long advocated employee participation in activities reflecting capabilities and talents within Astronautics.

Articles must be of interest in the aerospace industry and cover such topics as design testing, fabrication, launch vehicle and spacecraft operation, electronics, cryogenics, reliability, plant engineering, safety, industrial relations, etc.

Graphs, charts and photographs may be included in articles which must contain more than 1,500 words. Preparation must be during off-duty hours and each article must be prepared in manuscript form.

Authors must be on the payroll when the article is accepted for publication and can not accept fees from the publisher. Co-authors will divide awards equally.

Ineligible are those assigned to prepare material for publishers outside Astronautics.

Authors must obtain division and security clearance for all written or graphic material.

Communication department's editorial publications group (Dept. 127-1) administers the program, determines award eligibility, handles the placement of articles for publication, and operates as a service organization for authors.

Information on the program is available at ext. 4449.

Management Systems Director Named, Reporting to Traversi

Several executive appointments within administration functions, including a new director of management systems, have been announced at General Dynamics/Astronautics by President J. R. Dempsey.

Involved are positions under Frank J. Traversi, vice president-administration.

New director of management systems is J. H. Johnson. He replaces G. M. Robertson who has resigned.

J. H. Johnson

J. M. Hanley has been named assistant to Traversi, while R. H. Quinn was appointed manager of material cost and administration.

Johnson has served as chief of vendor research and value analysis. He holds an associate of arts degree and is a lieutenant commander in the U.S. Naval Reserve. Prior to joining Astronautics, Johnson was assistant to the manager of procurement and material division of Aerojet-General. His work there included establishment of mechanized purchase order status reporting and automated inventory control systems.

A graduate of Union College, New York, and the Chicago Law School, Hanley practiced law and served as both state's attorney and assistant attorney general of North Dakota. From 1941 until 1960 he served in the U.S. Army, attaining the rank of full colonel. For eight years he served with the Armed Services Board of Contract Appeals in Washington and Tokyo. At Astro he has served as material contract adviser and recently as manager of material contracts and services.

Quinn now heads a consolidated function formerly divided between material cost and material contracts and services departments. He is a graduate of Northeastern University, Boston, and was manager of budgets and reports at Gillette Safety Razor Co. before resigning to join Astronautics in 1961. His assignments have included work as chief of material price analysis and more recently, manager of material cost.

J. M. Hanley

R. H. Quinn

Under the consolidation of the two former functions, W. C. Clinton, chief of material contracts, now reports directly to the director of material.

Log Book Entries

Service Emblems

William M. Holland, Dept. 759-0, recently received his 25-year emblem from President J. R. Dempsey.

MAIN PLANT

Service emblems due during the period Dec. 1 through Dec. 15.

Twenty-five-year: Dept. 344-3, Sam Galasso.

Twenty-year: Dept. 331-1, R. P. Earnest; Dept. 369-6, R. E. Crowder; Dept. 480-0, F. E. Kirby.

Fifteen-year: Dept. 105-0, L. K. Murray; Dept. 250-2, C. S. Hardisty; Dept. 382-3, H. H. Koch; Dept. 383-4, H. C. Van Trease; Dept. 399-0, Anthony Calman Jr.; Dept. 403-3, A. E. Williams; Dept. 460-0, M. L. Stack; Dept. 832-1, P. J. Morgan Jr.

Ten-year: Dept. 143-4, G. H. Townsend; Dept. 222-3, A. E. Morrell; Dept. 344-0, Hazel M. Williams; Dept. 365-2, F. R. Fitzmaurice; Dept. 388-1, H. L. Davis; Dept. 401-3, C. C. Cope (due 11/18/62); Dept. 756-0, J. W. Board, H. P. Higdon; Dept. 759-0, C. F. Strickland; Dept. 851-2, Iva W. McCall.

AFMTC

Twenty-year: Dept. 571-3, P. L. Dudney.

PLATTSBURGH AFB

Fifteen-year: Dept. 620-3, Ruth N. Page.

VANDENBERG AFB

Ten-year: Dept. 576-5, A. B. Daddi.

Promotions

MAIN PLANT

Promotions to or within supervision effective Nov. 19.

Dept. 030-0, Electronics Field Operations: To electronics group engineer, C. C. Lewis.

Dept. 110-0, Contracts: To chief of contracts, D. C. McCarthy.

Dept. 142-1, Reliability Control: To asst. test lab group engineer, J. W. Grochowski, M. A. Wolfe.

Dept. 364-0, AWS Contracts: To chief of contracts, J. R. Bachman.

Dept. 652-4, SLV Reliability and Maintainability: To reliability group engineer, David Meister.

VANDENBERG AFB (PMR)

Dept. 661-5, SLV Electrical and Electronic Design (Launch Computer): To asst. design group engineer, J. L. Harper.

Births

MAIN PLANT

COOPER—Daughter, Lynett Jane, 8 lbs., born Nov. 22 to Mr. and Mrs. Dail H. F. Cooper, Dept. 322-7. Grandfather is J. H. Cooper, Dept. 130-8.

LUDWIG—Daughter, Sabine Gertrud, 6 lbs., 12 oz., born Nov. 20 to Mr. and Mrs. C. B. Ludwig, Dept. 596, (Plant 1).

RHODES—Daughter, Rebecca Marie, 8 lbs., 6 oz., born Oct. 16 to Mr. and Mrs. Fred Rhodes, Dept. 151-0.

Astro Mother Pins Wings on Navy Son

Genevieve C. Burroughs, GD/Astro Dept. 130-1, took advantage of her recent vacation to fulfill a Navy tradition: she was on hand Nov. 17 to pin naval aviator's wings on her son, Ensign William Burroughs, who was graduated from flight training at Corpus Christi, Texas.

Her vacation included a visit with another Navy son, Midshipman Gerald Burroughs.

Wade, Ferrara Get New Titles In Engineering

Appointment of a new chief engineer (development design) and elimination of the office of another (administration), plus creation of a new dynamics group, highlight organizational changes at General Dynamics/Astronautics.

Ernest Wade

Ernest Wade is the new chief engineer—development design.

Paul D. Ferrara, formerly chief engineer—administration, is now assistant program director—engineering for Centaur (**General Dynamics NEWS**, Nov. 21).

In administrative engineering changes T. A. Billings becomes chief administrative engineer responsible for engineering office services functions headed by D. H. McCoy; for checking and configuration data control units under M. M. Sherman; and for specifications and standards, vendor data control, engineering data documentation practices and engineering systems and procedures.

A. J. Gillette, acting chief of planning and estimating, is responsible for his former group as well as engineering facilities planning and control (S. A. Levinson). Filling a staff position under Gillette is W. T. Rieff.

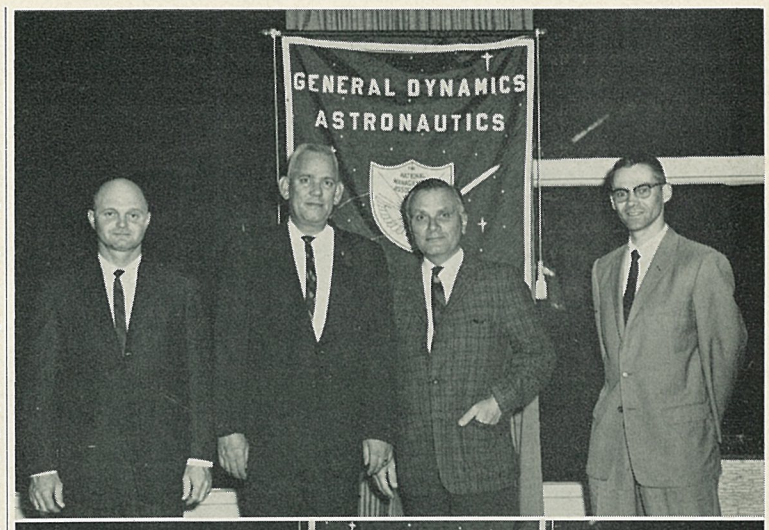
Wade, Billings and Gillette now report directly to W. W. Withee, vice president—engineering.

Engineering support functions under Chief W. Garcia have moved from the administrative function to development design, reporting to Wade.

Named acting head of the new dynamics function, also under Wade, is K. A. Kachigan. This new group will have a strong project orientation, assisting present and future project organizations in the areas of structural and control dynamics through sub-groups for each project.

Assuming a staff position in dynamics is E. W. Carlson.

Also a part of development design are: central test equipment design and requirements (R. J. Reyburn); electronic communication development (F. T. Sinnott); and guidance control development (J. E. Leib).



CAPE OFFICERS—In top photo are new Management Club officers at Cape Canaveral. From left: Bob Beasley, first vice president, Stu Carse, second vice president, Dick Jaeger, secretary, Ralph Carpenter, treasurer. President Ken McCarthy was not present. In lower picture are new Board of Control members: Bill Baker, Tom Phillipp, John Tribe, Jack Lennon, John Mazza, Frank Haffey.

BIG STEP—GD/Astronautics forces at Cape Canaveral recently finished second year and 4,120,289 manhours without lost time accident. B. G. MacNabb, center, director of AMR operations, receives trophy from K. R. McCabe, safety engineer, as other key personnel watch. They are, from left, R. G. Goldinger, Dan Sarokon, J. E. Hart, K. Lyones, J. N. Remissong, B. J. Poole, T. R. Henry, A. S. Jossi and T. J. O'Malley.

Major Astro Welding Functions Centralized For Coordination

(Continued from Page 1)

cient and economical operation through greater standardization.

Center operations have been split into three general areas: welding engineering, research and development, and manufacturing support. All deal in specialized ways with fusion and resistance welding, brazing and soldering.

Welding engineering adds welding metallurgy and non-destructive test development to its roster of tasks, and in general is involved with production and design functions. The group is represented in pre-design and design phases of all projects, sets up engineering specifications, and approves drawings.

Research and development, under G. J. Langford, assistant supervisor, concentrates on advanced welding and metal joining techniques. This group is presently deeply involved in GD/Astro's NOVA study.

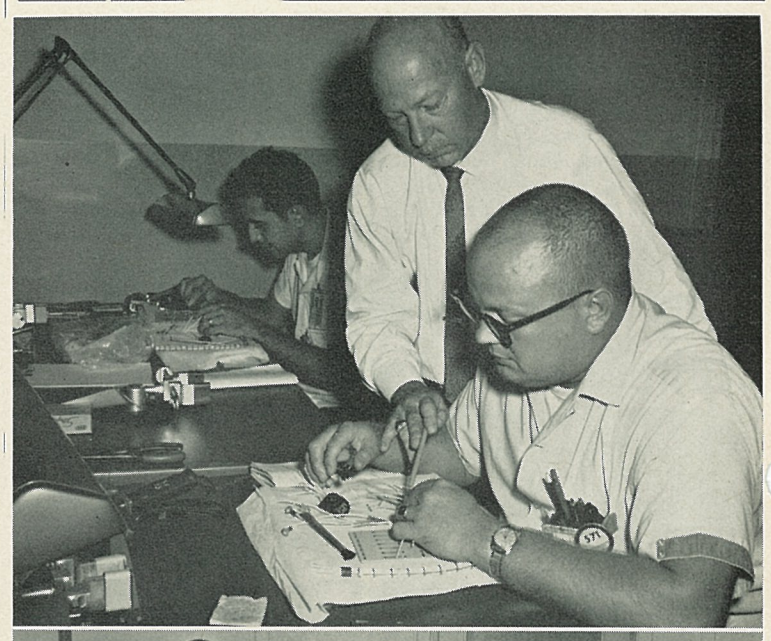
Welding Technology Center's third sub-group, manufacturing support, takes a "how to" approach, supporting tooling and factory departments.

This group works on factory welding schedules, monitors production welding and maintains liaison in tooling areas for planning purposes. Its responsibilities also include welding instruction and certification of manual welders.

Functions of Welding Technology Center are supported by three welding laboratories, all in Bldg. 5.

One centralizes metallographic and tensile test equipment, while another concentrates on resistance welding tests. The third, a fusion welding test lab, is fitted with advanced equipment acquired by GD/Astro during the past year.

Included are two Linde "Missile Makers," being used in the NOVA study, and a special Pandjiras straight line welder built to company specifications for advanced development.



EXACTING—Special course, patterned after NASA course at Huntsville, Ala., was held in "Reliable Electrical Connections" recently for GD/Astro personnel at Cape Canaveral. In upper photo D. J. Gorman, instructor, explains detail. Below, center, L. D. Del Monte, with other graduates, receives cards from R. J. Kolek of quality assurance.

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* * *

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Supersonic Transport Believed Inevitable

President C. R. Smith of American Airlines recently predicted that the United States will build supersonic transports because it cannot do without them.

Smith said some nation is certain to build a supersonic transport, and that nation would then dominate world air transportation with its accompanying economic and prestige benefits.

"Obviously, no nation will permit another to dominate world air transportation and the least likely of all to take a back seat is the United States," Smith said. "Let us assume then, as we must, that the United States will make an all-out effort to be suitably represented on the air lanes of the world."

Speaking at the annual meeting of the American Society of Travel Agents in Las Vegas, Smith cautioned his audience that they were not likely to make bookings on supersonic transports within the next 10 years, however.

Economic objectives must be attained in the development of a supersonic airliner, Smith said. "The airplane of tomorrow should be self-sustaining, with attainable load factors, at prices that the customer will be willing to pay," he said. "We now know very little about the economic potential of supersonic air transportation.

"We now have only estimates of what the airplane may cost and what the cost of operation may be," Smith continued. "We must have better answers and it will take time to produce these.

"The future of supersonic air transportation will be limited indeed if supersonic transports can be afforded only by national governments," the airline authority added.

Another question is whether a supersonic transport should be constructed to fly at twice the speed of sound (Mach 2), at two and one-half times the speed of sound (Mach 2.5) or at three times the speed of sound (Mach 3).

"If we could be sure that all other nations would be willing to stop at the half-way house, doing no more than Mach 2, it might be sensible to adopt that course," Smith said. He added, however, that if some nation believes it can go directly to Mach 3 with success, it will be even more eager to do so if it is persuaded that its neighbors will likely stop for the time being at Mach 2.

"As of now, the best course appears to be the development of a transport able to do Mach 2 or Mach 2.5, with a built-in ability to stretch later to Mach 3," he said. "Any ultimate planning goal short of the maximum too readily brings the threat of early obsolescence."

Airplanes that can fly faster than Mach 1 (speed of sound) can be built around conventional aluminum alloys, he noted. But long before Mach 3 is reached high temperatures will make different metals, probably steel and titanium alloys, necessary, he said.

Smith also said the supersonic transport must have some potentiality for domestic air commerce, as well as transoceanic travel.

"But how much it can be used in the United States will depend largely on the plane's performance and on its economic characteristics and these are now too uncertain to support strong opinions," he continued.

"The reason we need time for the development of supersonic air transportation is that, while we should not dally, we must also be sure not to get too far ahead of our knowledge," Smith said.

OVER THE FALLS—Canadair-built CL-44 cruises over famed Horseshoe Falls at Niagara, Ontario, in this spectacular photo, taken by Royal Canadian Air Force from a Flying Boxcar. Another RCAF CL-44 recently completed record 23-hour, 51-minute flight from Ottawa to North Pole and back to North Bay, distance of 7,000 miles.

GD/Astro Paper Read in Tokyo

A research paper co-authored by two General Dynamics/Astronautics design specialists was presented recently at the Fourth International Symposium on Space Technology and Science held in Tokyo.

Co-authors were Dr. Paul E. Wilson and Edward E. Spier Jr. of Astro's structures research group—applied research laboratories. Professor T. Hayashi of the University of Tokyo presented the paper.

The Japanese Rocket Society screened and evaluated abstracts and papers from throughout the world for presentation at this event.

Dr. Wilson and Spier presented extensive theory and illustrated unique findings on the large deflections of spherical shells subjected to concentrated radial loads. Their paper was titled "Numerical Analysis of Small Finite Axisymmetric Deformation of Thin Shells of Revolution." Technical investigations for this paper were supported under a General Dynamics-sponsored research program.

AF Education With Industry Symposium Hosted by Astro

Participants in Air Force Education With Industry (AFEWI) programs at 13 major industrial firms throughout the United State converged last month on San Diego for a three-day meet.

Occasion was the annual AFEWI Program Management Symposium, held this year at General Dynamics/Astronautics.

Attending were 22 officer students and 14 AFEWI coordinators from aerospace firms as distant as Maryland and New York, plus a six-officer delegation from Air Force Institute of Technology which administers the program.

In the latter group were Col. K. D. Stevens, deputy commandant of the Institute; Col. M. R. Palmer, director of civilian institutions programs; Maj. A. L. Savoca, chief, professional education branch; his assistant, Capt. J. Gurski; and Lt. Col. C. S. Wylie.

Hosting the event was J. A. Croft, GD/Astro chief of educational services, while Lt. Col. V. A. Black, Maj. W. A. Wenberg, and Capts. B. E. Goode and D. L. Picardat, participants in this year's AFEWI program at GD/Astro, attended symposium sessions.

The group toured GD/Astro operations at Kearny Mesa and Plant 2.

During business sessions, W. H. Patterson, vice president-advanced product planning; E. G. Hill, controller; Directors G. M. Robertson, C. W. Blakey and P. I. Harr, described GD/Astro organization.

Other speakers included GD/Astro's J. L. Budros, J. H. Johnson, K. F. Schuele, W. S. Dickey, A. B. Cox, R. A. Lynch, and Dr. R. C. Armstrong.

GD/Astro Engineer Attends Conference

Philip J. Swanson, project engineer at General Dynamics/Astronautics, was an observer at a Junior Engineering Technical Society Leadership Conference held recently at California State Polytechnic College, Pomona.

The conference was designed to encourage and assist high school and junior college students in exploring engineering careers.

PRE-PLANNING—GD/Convair value control coordinators meeting to outline schedule for Nov. 27-29 customer and supplier seminar are, around table from left, Joe Freeman, Charles Wallman, B. W. Kahla, D. L. Macey, S. W. Swenson, H. P. Williams, value control manager, W. D. Lavis, E. P. Pennebaker, W. G. Martin, G. P. Williams, J. J. Jodka, W. H. Goggin.

Customers, Suppliers Attend Value Control Seminar at SD

About 30 customers and supplier representatives were at San Diego last week attending a value control seminar arranged especially for them by General Dynamics/Convair.

The three-day value engineering/analysis seminar is second in a series planned for interested military and governmental personnel and vendors of both GD/Convair and GD/Electronics divisions. First seminar of this kind was held at the San Diego plant in May of this year.

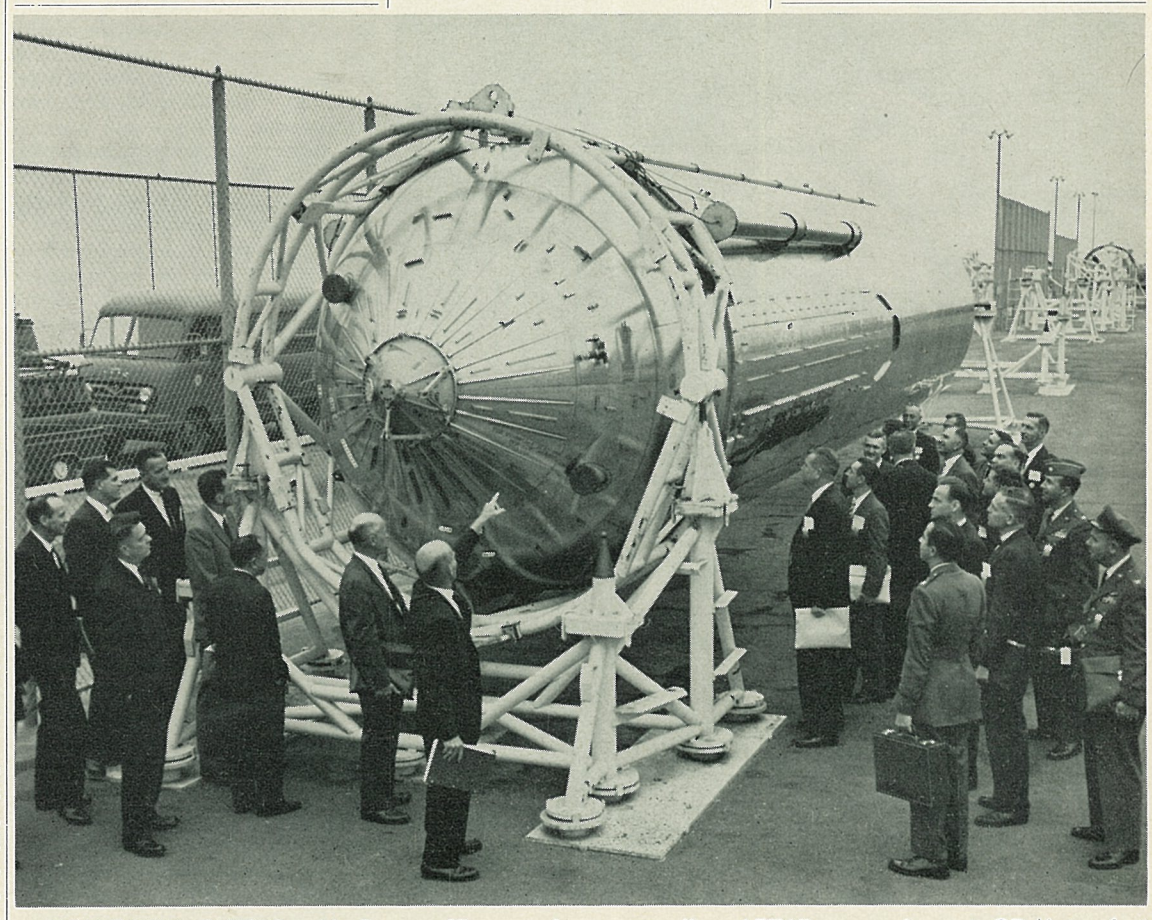
Sending delegates to the Nov. 27-29 session were Army, Navy, Air Force commands and over a dozen firms throughout the country, said H. P. Williams, GD/Convair value control manager, in charge of the program.

Military installations sending delegates included Naval Air Station, San Diego; Bureau of Naval Weapons; Los Angeles Procurement District, Pasadena, Calif.; San Diego Air Force Contract Management District.

Vendor representatives were sent by Raymond Development Industries, Airesearch Mfg. Co., The Garrett Corp., Fairchild Camera and Instrument Corp., Dutton Mfg. Co., Rohr Corp., Rule "D" Corp., Talley Corp., Pacific Scientific, Archer Machine Co., Marman Division of Aero-

(Continued on Page 4)

"You can quit promising to take the storm windows down now—it's time to leave them up again."



SYMPOSIUM GUESTS—Air Force officer students attending AFEWI symposium at GD/Astro last month ring Atlas missile tank during tour. Pointing out details is Emory Thurston, educational services, standing center with clip board.

USS Columbus, Armed With Tartar, Goes to Sea as 'Brand New' Ship

Crew members who served aboard the heavy cruiser USS Columbus before she underwent conversion to become a guided missile cruiser at Puget Sound Naval Shipyard, Bremerton, Wash., will never recognize her as the same ship.

Columbus, commissioned Dec. 1 at Puget Sound Naval Shipyard, has been completely "face-lifted," from bow to stern, from keel to the top of the mast. Only remaining parts of the "old" Columbus are the engineering systems and the hull itself. Even the hull designation number has been changed, from CA-74, to CG-12.

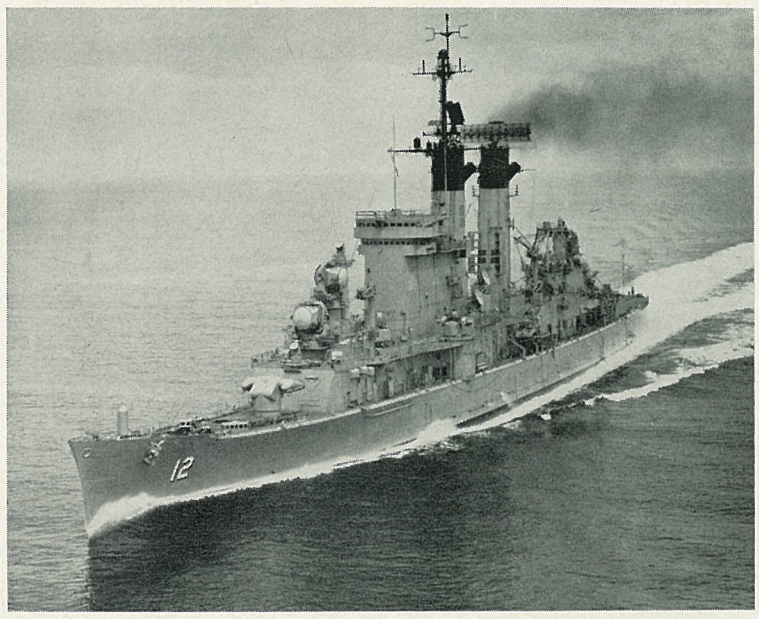
General Dynamics Corporation was represented at the commissioning by G. E. Sylvester, GD/Pomona vice president — operations, who presented the ship with a set of quarterdeck markers—scale models of Tartar missiles.

The entire superstructure of the Columbus was removed by yard workmen to make way for a new superstructure bristling with guided missile launchers and radar antenna. This new superstructure, along with the new "mack" (a new word combining "mast" and "stack"), gives the Columbus a strange, radical appearance—the ship is now seemingly topheavy. However, this is not the case. Almost exclusive use of aluminum for superstructure fabrication cuts the topside weight considerably.

From the keel to the top of the mast, the Columbus measures 217 feet 6 inches, higher than aircraft carriers of the Coral Sea class. Her overall length is 673 feet.

The mast, which is atop the forward mack, is collapsible, making it possible for the ship to steam into almost any seaport in the world. Due to the low spans of some bridges at entrances to harbors, such as New York City's "Hell's Gate Bridge," it would have been impossible for the Columbus to enter port without the collapsible mast.

The "new" Columbus is armed with three missile systems—two for anti-aircraft work and one for anti-submarine warfare. Two separate twin Talos launchers are the main battery, one fore and one aft, augmented by Tartar launchers mounted on the port and starboard sides of the ship. The anti-submarine rocket propelled torpedo ASROC gives the Columbus outstanding long-range anti-submarine capabilities. The only guns aboard the Columbus are various small arms and one forty-millimeter saluting battery.



TALOS, TARTAR, ASROC—USS Columbus (CG-12), newest addition to Pacific Fleet, has three missile systems. Talos, powerful, supersonic missile used for anti-aircraft, shore bombardment or against other surface ships; Tartar, surface-to-air missile built by General Dynamics/Pomona; and ASROC, rocket-propelled anti-submarine torpedo/depth charge.—(Official U.S. Navy photo).

Inclement weather is no longer a problem to the officers and men standing watch on the bridge of the Columbus. The entire bridge area has been enclosed with glass windows affording unrestricted visibility in all directions. What amounts to a miniature reproduction of the combat information center is located on the bridge, providing the commanding officer with an accurate picture of the developing combat situation.

The Columbus has been redesigned to accommodate a larger afloat flag officer's staff. All of these requirements have been met through use of spaces in the mack. Additional spaces are devoted entirely to radar, communications, and other facilities essential not only to the efficient operation of the ship, but necessary for the functioning of the Admiral's staff. In addition, to facilitate rapid movement from the main deck to the eighth level above the main deck (the bridge), a personnel elevator with room for six persons has been installed.

A completely different type crew is required for manning the new Columbus. Guided missile technicians replace many gunner's mates, to handle the intricate procedures for launching and maintaining the exotic guided missiles and guidance systems. A greater number of men in electronics, communications and radar fields are required due to the greatly expanded communications and radar facilities.

Living conditions for officers and enlisted men are vastly improved. All department heads are provided with individual staterooms and junior officers double up in staterooms as large as those for commanding officers on destroyers. All of the quarters are furnished with newest type shipboard furniture, including transom bunks, individual desks and stateroom telephones.

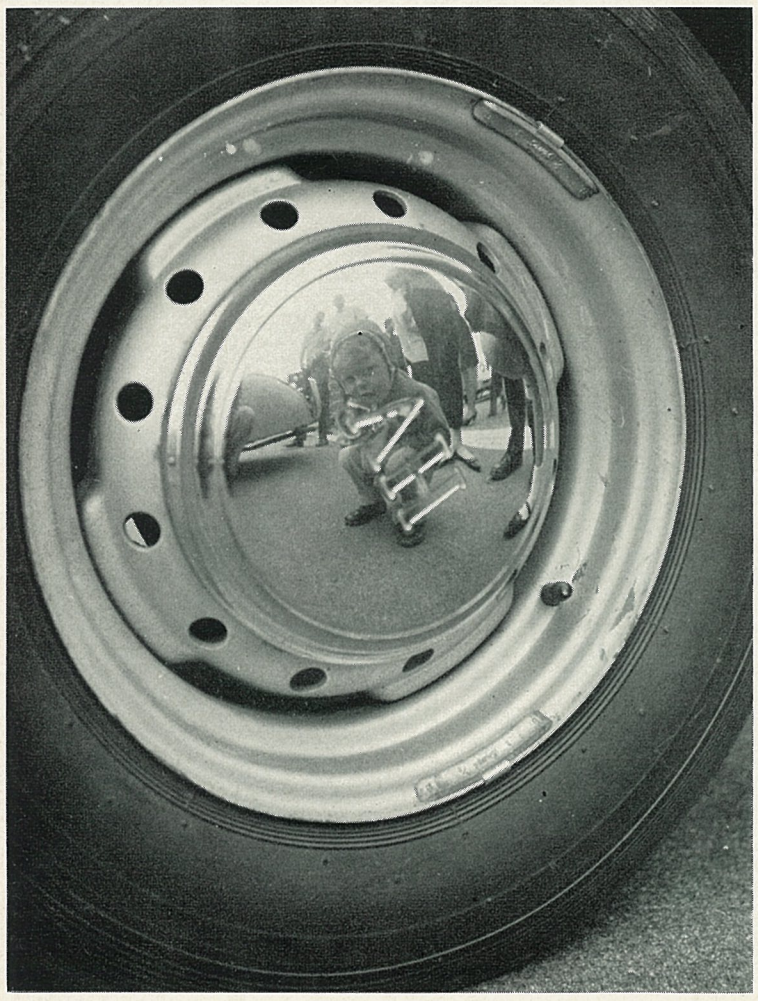
Enlisted berthing spaces are greatly modernized for habitability. Bunks are no longer stacked in tiers of four and five. The majority are double bunks with a few in tiers of three. Lockers are not to be seen—tops of bunks lift up to reveal each man's locker beneath his foam rubber mattress. Bunks are separated by aluminum partitions to afford more individual privacy. Each bunk also has an individual reading lamp. All berthing compartments have adjacent toilet and shower facilities. All working and living spaces are air conditioned.

The ship's own radio station can pipe continuous music, news and other type programs into each compartment.

Also introduced aboard the Columbus is a Central Control Station. This combines all of the engineering watches in a central part of the ship, away from the noise of the engine rooms. During the ship's drills this area will be bustling with activity with the engineering watches and numerous telephone talkers assembled to watch the many dials and instrument panels giving readings direct from engineering spaces.

The Columbus, although a cruiser, also has an Air Department. Two helicopters are housed aboard for personnel transfer and sea rescue purposes. They are kept astern, below decks in a hangar which also houses complete maintenance facilities. To get the helicopters to the main deck for takeoff, an elevator similar to those on aircraft carriers is used.

A full complement of doctors and hospital corpsmen are carried and a seven-bed hospital.



PEEKABOO—Novel photo shot at GD/Convair sports car rally recently by Howard Harvey shows curious tot reflected in hub cap of Austin-Healey.

C. F. Horne Speaks At SF Conferences

C. F. Horne, General Dynamics/Pomona president, spoke at two meetings in the San Francisco area last week.

On Nov. 27 he spoke at an inaugural meeting of the Northern California Industry-Education Council at Berkeley.

The following day he spoke at the Electronic Industries Association Winter Conference meeting in San Francisco. Horne is president of EIA.

Value Control Seminar Held

(Continued from Page 3)

quip, Robert Shaw Fulton, La Mesa Tool.

The capsule 24-hour course, concluded last Thursday, saw all delegates receiving an intensive briefing on key value control techniques, with actual workshop projects assigned for concrete application.

E. D. Heller, division value control coordinator for GD/Pomona, spoke at the opening day session on importance of defining and evaluating "function" as basis of value control approach and efficient job planning as a part of the material he covered under the subject, "Value Engineering Approach."

Others playing major roles in the seminar were C. S. Brandt, C. K. Twohey, G. W. Zahrte, Harry Rote. Project leaders for the three workshop teams were John Hoover, Gene Catton, George Axt. All are GD/Convair.

GD/Convair departmental value control coordinators laid the groundwork and assisted during the special seminar. They are: G. P. Williams, administration; S. W. Swenson, engineering; B. W. Kahla, industrial engineering; E. P. Pennebaker, marketing; Les Hawson, public relations; W. D. Lavis, factory; W. G. Martin, tooling; W. H. Goggin, industrial relations; Charles Wallman, quality control and production flight; Al Vernon, controller's office; D. L. Macey, material and production services, with Joe Freeman and H. A. Billings of procurement and purchasing, assisting in training.

Germeraad Speaks In Lecture Series

D. P. Germeraad, chief engineering test pilot at General Dynamics/Convair, was one of the initial speakers in the current "Meet the Scientist" lecture series for the San Diego area high school students.

Germeraad's talk before students of Taft Junior High School late last month dealt with "Flight Testing from the Pilot's Viewpoint."

VOTE GETTER — Astronautics' entry in Vandenberg AFB Fire Prevention Queen contest was pert Anita Holmdahl, Dept. 576-6 stenographer. Opinion was Anita might start more "fires" than she put out, but she did help draw attention to event.

Electric Boat To Launch New Polaris Sub

The nation's newest Polaris missile-firing submarine, named for a patriot from Connecticut who died for his country, will be launched Jan. 12 at General Dynamics/Electric Boat, Groton, Conn.

The nuclear-powered ship will be christened Nathan Hale by Mrs. George W. Anderson Jr., wife of the U. S. Chief of Naval Operations.

Sister-ship of the prototype Lafayette, launched here May 8 and the Alexander Hamilton, which slid down the ways at Electric Boat on August 18, the blimp-shaped Nathan Hale is 425 feet long and displaces 7,000 tons.

It is the 14th nuclear-powered submarine launched at the Groton shipyard and the seventh of these to be Polaris-armed. The ship will be equipped for underwater launching of the 1,500-mile-range Polaris missile and the 2,500-mile missile now under development.

REMEMBER WHEN?—Probably not, but costumes in upper photo were rage in "Roaring Twenties" which GD/Astro Wives Club at Cape Canaveral recalled at party recently. Girls are, from left, Liz Williams, Trudy Becker, Bernice Finney, Mary Larson, Evelyn Jaeger, Emily Lynch, Evie Poole. In lower photo, Don Williams and Fred Weyher belt out a tune on banjos.

Classmates at College Reunited, As Scientists for Dynamics

Four German scientists, all former classmates at West Germany's University of Aachen, have renewed alma mater ties again halfway around the world as one by one they arrived in San Diego where all are now connected with General Dynamics/Astronautics.

All but one came to General Dynamics without knowledge of the others' whereabouts.

K. G. P. Sulzmann, staff scientist in GD/Astro space science section, was first of the foursome to reach the West Coast and join the company about five years ago. His enthusiastic accounts of Southern California encouraged Dr. C. B. Ludwig, also GD/Astro 596-2 staff scientist, to trek west a year later.

Johannes Wissmann, now in GD/Astro dynamics, arrived about the same time as Sulzmann, without knowing he had a fellow alumnus in the area.

All three were first with the former "foreign legion" while awaiting clearance. Then, Ludwig and Sulzmann went into the GD/Convair physics section and Wissmann into GD/Convair structures engineering.

Latest recruit of the University of Aachen alumni "chapter" is Hubert K. Lintz of GD/Astro applied research. When he landed at General Dynamics, also with the GD/Convair physics group a little over a year ago, he had a ready-made welcoming committee on hand — Ludwig, Sulzmann, and Wissmann.

The unexpected reunion brought back vivid memories of the years they had spent together at the German university in the early '50s when Ludwig was working toward his doctorate and Sulzmann and Lintz, their master's degrees, all in physics; and Wissmann, a master's in mechanical engineering.

AACHEN "ALUMNI"—GD/Astro scientists, from left, Johannes Wissmann, Hubert Lintz, Dr. Claus B. Ludwig, Klaus Sulzmann, all graduates of Germany's University of Aachen, renew ties at San Diego.

'Stromberg-Carlson' Equipment Installed For Dulles Jetport

When President Kennedy's plane begins using the new Dulles International Airport, all telephone calls that the Chief Executive makes from there to the Pentagon or White House will be placed over "Stromberg-Carlson" equipment.

General Dynamics/Telecommunication has designed and manufactured the entire central telephone office for the new international jetport.

The huge jetport, named for the late Secretary of State John Foster Dulles, is an architectural masterpiece with a 178-foot high control tower and a 600-foot long terminal building. Under the graceful hanging roof that is suspended between supporting columns will be airlines and government offices. "Stromberg-Carlson" telephones, some of them with special adaptations, will be used throughout.

The central office equipment—an XY dial system—is being operated by Piedmont Telephone Co. The 1,340-line, 1,400-terminal central dial office is set up in the communications and weather building at Dulles.

Now President Kennedy and top government officials can dial directly the 30 miles to Washington and be connected to the government's internal telephone network.

Airlines are getting ready to move offices into the jetport and are asking for "Stromberg-Carlson" equipment.

JET AGE—General Dynamics/Telecommunication President John Voss makes call on new multiline phone system installed at Dulles International Airport as T. C. Watson, vice president-sales, checks him out.

Servovalve Orders Total $1 Million

Moog Servocontrols, Inc., of East Aurora, N. Y., has announced receipt of an order of about $1 million from General Dynamics/Pomona.

The order is for electrohydraulic servovalves, key components in the flight control system of the Navy's Advanced Terrier/Tartar guided missiles. The Advanced Terrier/Tartar surface-to-air missiles are carried on ships as a defense against aircraft. Moog servovalves are also employed on the missile's launching equipment.

Warning on Buffalo Recalled by Retiree

A letter to **General Dynamics NEWS** from Garland Mitchell of Big Sur, Calif., who retired from GD/Astronautics in 1957, carries comment on a two-page spread on Warren AFB and its Atlas missiles that appeared in **GD/NEWS** of Nov. 7.

"I might add to your interesting articles on Warren AFB a piece of information that I recall concerning the post when it was the cavalry's Fort D. A. Russell. There was a sign in one of the barracks—and it may still be there—that read: 'Positively no shooting buffalo from the porches.'"

Venus Fly-By For Mariner Set For Dec. 14

Chalking up new space records with every hour of operation, the Mariner II spacecraft this week is speeding toward an important fly-by of Venus now set for Dec. 14.

Atlas 179-D and Agena B stage were used to send Mariner II on its ambitious journey through space. Launch was from Cape Canaveral on Aug. 27 with General Dynamics/Astronautics' Orien Reed serving as site manager (formerly test conductor).

Except for an eight-day period when instruments were turned off to conserve power, Mariner II has been transmitting data continuously, 24 hours per day.

This engineering data—pressures, temperatures, voltages—reports on the status of the spacecraft's various systems. Four experiments are being conducted en route to Venus. They are the measuring of magnetic fields in space—cosmic dust density, energy, distribution and variations of charged particles—and the extent, variations and mechanism of solar corona.

On Dec. 14 Mariner II is slated to fly past Venus at a distance of 20,900 miles and measure microwave and infrared emissions from the planet. These experiments will be automatically activated 10 hours in advance of the fly-by.

One of the important objectives of the mission is to determine the temperatures of the atmosphere and surface of Venus.

Mariner II has broken all previous space probe records for both useable data transmitted from great distances and the distance over which information has been transmitted.

Quality Symposium Will Hear Papers Of Dynamics Men

Additional papers prepared by General Dynamics personnel have been accepted for presentation during the Ninth National Symposium on Reliability and Quality Control Jan. 22-24 in San Francisco.

P. J. Orth of GD/Astronautics will present a paper titled "A Monte Carlo technique for combining subsystem test data to estimate system reliability" on Jan. 22.

"Head, human factors and maintainability — space launch vehicles" will be presented Jan. 23 by Astro's David Meister.

J. Y. McClure, General Dynamics director of reliability and quality control, will present a paper prepared with Astro's E. S. Winlund Jan. 24. It is titled "Design review, a philosophy, survey and policy."

GD/E Men 'Go to Sea,' Visit Missile Ship

Five General Dynamics/Electronics men "went to sea" along with other San Diego Chapter members of the Armed Forces Communications and Electronics Association last month.

Members were taken aboard the USS Dixie, flagship of Rear Adm. Frank Virden, USN, Commander Cruisers-Destroyers Pacific Fleet, and the guided-missile destroyer USS Towers (DDG-9), commanded by Cdr. J. D. Cummins, as their Nov. 13 monthly session.

John Orthel of GD/E plans and programs, current president of the local AFCEA chapter, headed the GD/E delegation. Others were Max Frank and James Hamill of GD/E technical publications, Plant 1; J. C. Kogan, technical publications, Plant 2 (Hancock St.); Rex Brouillard, GD/E plans and programs.

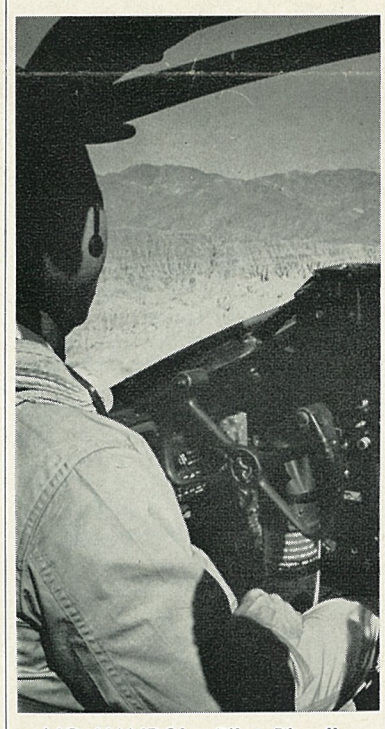
Save Material—Don't Throw Your Job Away!

THERE IT IS—Roger L. Olson, GD/Electronics project engineer (center), points out location of GD/E terrain avoidance radar system to Bill Hartley, San Diego Evening Tribune military writer, before demonstration flight. At left is Pilot James Bissell who was at controls of B-26 during series of evaluation flights during last two weeks.

Aircraft Experts See 'Roller-Coaster' Test

Military and commercial aircraft experts from all over the United States gathered at San Diego during the last two weeks for evaluation in actual flight of the terrain avoidance radar system developed by General Dynamics/Electronics—San Diego.

Twenty flights were made in the 10-day period over rugged terrain inland from the coast in the first fully-automatic, low-level flights to demonstrate the terrain-following radar system.



NO HANDS!—Pilot Bissell relaxes while GD/E radar system automatically keeps plane at safe distance above rough terrain.

Pilot James Bissell, who has flown 130 flights in aircraft equipped with GD/Electronics' terrain avoidance radar, took his passengers over desert, sea, and mountain ranges to prove that the automatic, electronic system, with no help from him, will keep the plane a safe distance above any obstacle beneath.

Flights, made in a converted B-26 bomber, were at 400 feet above the ground, although altitudes of 200 feet are possible with safety.

Typical of comments coming from the demonstrations was that of Maj. R. T. Starke, Tactical Air Command, Langley, Va.; "After 10 minutes of low-level automatic flight, the ride gets boring!" Major Starke went on to indicate that the monotony was caused by the smoothness of operation and reliability of the system.

Capt. G. H. Sult, director of Weapon Systems Test, NAS, Patuxent River, Md., was another who expressed his pleasure with the flight test.

Other evaluators came from Naval Air Developmental Center, Johnsville, Pa.; Cornell Aeronautical Laboratory, Buffalo, N.Y.; Aeronautical Systems Division, Wright-Patterson AFB, Ohio; Naval Ordnance Test Station, China Lake, Calif.; ComNavAirPac, North Island NAS, Calif.; Miramar NAS, Calif.; Royal Canadian Air Force; Norair, Division of Northrop Corp.; Radio Plane Division, Northrop — Ventura; Ryan Aeronautic Co.; Boeing Co., Seattle, Wash., and Wichita, Kan., headquarters; Douglas Aircraft Co., Inc.; Grumman Aircraft Engineering Corp., Long Island, N.Y.

Demonstration flights were given during the same time to members of the press, television, and radio.

Flying at 250 to 350 miles per hour, the B-26 followed a roller coaster course only a few hundred feet above mountains, deserts, and open water. In one 15-mile stretch of the test course, the terrain ranges from an altitude of 6,000 feet to the Salton Sea which is below sea level.

Before the recent fully-automatic flights, pilots had tested the system on a slower aircraft, a converted B-25. Both the B-26 and B-25 were leased by GD/Electronics from Tallmantz Aviation Co. of Santa Ana, Calif.

During manual test flights the pilot always remained in direct control. Instead of issuing commands to the autopilot, the radar system operated a simple instrument which signaled the pilot when to climb or descend to maintain the pre-set altitude.

The system now operates either automatically or in the manual mode. The system can fly the aircraft automatically for an indefinite period. To date, Bissell has hedgehopped for periods up to 50 minutes without touching the controls.

Purpose of the system is to aid aircraft and drones to fly safely at low altitudes across any terrain, in fog, rain, or at night. In military applications it will enable pilots to escape detection by flying below enemy early-warning radar beams, regardless of visibility. Both commercial and military aircraft can use the system for blind letdowns.

Coordinating demonstrations was J. E. Bowen of GD/E plans and programs. R. L. Olson, terrain avoidance radar project engineer, accompanied all flights. In charge of development of the system are J. L. Brooks, airborne radar engineering manager, and R. F. Schillinger, assistant manager.

All Dynamics Folk Encouraged To Attend Annual Game Draw

A five-star program will be on tap the night of the annual Big Game Drawing next Tuesday (Dec. 11) at Gillespie Field Clubhouse, 7:30 p.m.

All Convair, Electronics, Astro people, and their friends, are welcome to attend the jam-packed evening, sponsored by ARA-CRA Gun Club, emphasizes CRA Commissioner Jack Swank.

Some big game hunter will carry off first prize, a .308-cal. Remington auto-loading rifle. Second prize will be a camera, and a wide variety of hunting accessories, such as knives, socks, etc., will go to other lucky ticket holders.

"Everyone at any General Dynamics division in San Diego who has bagged a big kill this year, is urged to turn in his entry at once to be eligible for the drawing," said Swank. "Number of entries will determine the number of prizes."

Entries can be submitted at Astro or Convair employee services outlets, Electronics' industrial relations offices, Plant 1 and Plant 2 (Hancock St.), and to Swank.

Following the highlight of the evening, a film on big game hunting will be shown and Capt. John Roumasset of the California Department of Fish and Game will speak.

Awards will be handed out to "most improved shooter" of the year; to winners of the monthly skeet, rifle, trap shoot; and certificates to graduates of the recently-concluded hunter safety class.

Astro, Convair GD/E to Shoot For Prize List

Turkeys, hams, and bourbon will be "targets" at ARA-CRA Gun Club's annual Christmas skeet and trap shoot Sunday morning, Dec. 16, at Gillespie Field range.

All Astro, Electronics, Convair gun enthusiasts, their families and friends, are urged to be on hand to try their skill and luck as the opening round is fired at 9 a.m.

Five-man squads will be formed with a prize for best shot in each squad. Classes will be open to men, women, youngsters, either experienced or beginners. Families and friends may form their own squads.

CRA Commissioner Jack Swank and ARA Commissioner Ezra Johnson stress the fact that the Gun Club's facilities are available to all General Dynamics people.

Ranges at the Gillespie Field location, just west of El Cajon, include four trap ranges, two lighted; two skeet ranges; two small-bore rifle ranges.

Trap and skeet shoots are held first Sunday of each month from 9 a.m. to 2 p.m., and trap shoots Wednesday and Friday evenings, 7-10 p.m. Rifle practice can be done any time during the week and on weekends.

General Dynamics' people are charged only a nominal fee of 50 cents for trap and skeet shooting during daytime hours; 75 cents in the evening.

Guns are available at the range for use without charge and instruction is given to anyone wishing to learn.

Toastmasters Host Finals For Contest

Dynamics Toastmasters Club #457 hosted the finals of the high school speech contest, sponsored annually by Toastmasters International Area 5, at the group's Nov. 15 meeting in the Convair executive dining room.

Championship trophy went to Susan Sparks, with Stephen Hasbrouck named runner-up. Third contestant was Lana Ayres. All are El Cajon Valley High School students, coached by Mrs. Barbara Brooks, speech instructor, who was on the sidelines during the extemporaneous speech battle.

Susan was to go on to the District 5 speak-off Nov. 30 to pit her speaking ability against the other seven area winners, representing San Diego and Imperial counties.

Judges at the Area 5 finals were Larry Sweeney, GD/Convair; Ed Wynn and Cy Campbell, both GD/Astro. Campbell is current governor of District 5.

R. C. Emerson of GD/Astro chaired the meeting in his capacity as Dynamic Toastmasters' president and Ken Samples of GD/Convair, and Area 5 governor, acted as toastmaster for the special event.

The Dynamics group, open to all General Dynamics men in the San Diego area, holds regular sessions each Thursday evening in the Convair executive dining room, Pacific Hwy. Management clubs at both GD/Convair and GD/Astro encourage their members to participate by defraying part of the club fees. Anyone interested in improving his public speaking skill is urged to call Sweeney at ext. 1687, Plant 1.

Both Salvage Yards Close Xmas Weekend

Salvage yards at both GD/Convair and GD/Astronautics will suspend operations during the coming holiday weekends. Neither will be open for employee sales on the Saturdays preceding Christmas and New Year's.

Schedule is:
GD/Convair—Dec. 8, Jan. 5.
GD/Astro—Dec. 15, Jan. 12.

DECORATIVE—Recently Prophet Co., serving General Dynamics personnel in San Diego, entered Food Executives Association Culinary Art Show along with 60 other firms. Prophet won second in salad decoration, third in fruit plates and fourth in cakes, only categories entered. Gil Hutter, cafeteria manager at Astro, and salad makers Vie Sunday, left, and Lucille Gutierrez show off trophy.

GETTING SET—Archery commissioners, Al Stone of Astro and Al Phipps of Convair, lay final plans for coming IRC archery tourney open to all General Dynamics bowmen. Tournament date is Dec. 9 at Morley Field range.

ARA and CRA Spanish Students Will Make Gifts to Newsboys

Spanish students of the ARA-CRA-sponsored classes will be both giving and receiving at two Christmas functions in the Mexican mode on a coming weekend.

First, and most important, they will go across the border on Dec. 15 to share their Christmas bounty with others less fortunate. The next day they will gather at a "posada," or holiday gathering, of their own.

Clothing, food, and toys will be distributed on the Saturday date to Tijuana newsboys of all ages, called "voceadores," or literally, "shouters" for newspapers. The good will gathering will take place at 1 p.m. in the distribution area of Tijuana's El Mexicano newspaper plant on the corner of First and Revolucion Sts.

According to Jim Hardison of GD/Convair, instructor of the Spanish courses, these newsboys, ranging in age from 5 to 75, are particularly worthy of help. Many of them support themselves and families on the small amounts they earn selling newspapers.

Anyone wishing to donate articles may meet at the newspaper site, or call Hardison at 276-5805 or Evelyn Soulé, 278-4537, for pick up of presents.

Gardeners Gather For Joint Party At Astro Clubhouse

ARA-CRA gardeners will gather at 7:30 p.m. today (Dec. 5) for a joint Christmas party in ARA Clubhouse.

Commissioners E. L. Zimmerman and Everett Henderson have announced a program which includes games, door prizes, movies, cartoons and gifts for children.

Members of both GD/Convair and GD/Astro Garden Clubs will vie for nine turkeys; then participate in a gift exchange for which each person has been asked to bring a gift suitable for him or herself, and valued at not more than $1.

"This will be our biggest meeting of the year," Zimmerman and Henderson agreed. "The session will be all fun, no business."

Archers to Compete In Industrial Meet

General Dynamics archers will be twanging their bows in competition with other industrial William Tells at the annual Industrial Recreational Council tournament this Sunday (Dec. 9).

Starting time for the handicap shoot will be 10 a.m. at Morley Field Archery Range in Balboa Park, reminded CRA Commissioner Al Phipps and ARA Commissioner Al Stone.

Phipps and Stone had responsibility for all arrangements for the yearly event which is open to GD/Convair, GD/Astro, GD/Electronics people, together with all others connected with company members of the IRC.

The classes' Christmas party will be the next day, Sunday (Dec. 16), at Tijuana Country Club. Dinner will be at 6:30 p.m. followed by Mexican songs and entertainment until 10:30.

Reservations at $6 per person may be made by contacting Mrs. Soulé at her home phone in the evenings.

Bargain-Rate Trees Offered

Christmas trees, at bargain-rate prices, will go on sale next week for General Dynamics people.

Sales begin next Friday (Dec. 14) and will continue through Sunday (Dec. 23) at the CRA Clubhouse on Pacific Hwy., across from GD/Convair Plant 1. Hours will be from 10 a.m. to 9 p.m. each day.

W. E. Rickman of The Prophet Co. said that prime farm-grown trees will be available at about one-third below usual retail prices.

Douglas fir, silver tip, and white pine trees may be purchased at prices ranging from $1 to $5.

Parking lots adjacent to the Clubhouse will be open to shoppers after normal shift hours.

Lockwood Speaker On 'Decision Making'

John T. Lockwood, GD/Astro management development specialist (Dept. 130-3), last week made the concluding presentation in a series of management development sessions conducted by California State Employees' Association.

Lockwood addressed the 90 members of state management and management candidates on "Decision Making."

Christmas Dinner For $1 Offered

Turkey and all the trimmings will be on the menu for General Dynamics diners at all GD/Convair and GD/Astro cafeterias Thursday, Dec. 20.

The Prophet Co. is offering a special Christmas dinner at the flat rate of $1.

Dinner will include roast turkey, dressing, whipped potatoes, giblet gravy, buttered peas, tossed green salad and dressing, cranberries, roll and butter, choice of mince or pumpkin pie, beverage.

DYNAMICS MEDICOS ATTEND CONFERENCE

Seventeen from medical staffs at GD/Convair and GD/Astro were among the 75 from Southern California points attending the Medical Management dinner meeting sponsored by the San Diego Industrial Nurses Association late last month at the Ocean-House.

"Industrial Nurses Expectations, and the Needs of Management and Medical," were discussed by Dr. Clarence L. Lloyd, corporate medical director of North American Aviation Corp., featured speaker.

Representing GD/Convair were Dr. G. M. Clarke, chief physician; Charles Taylor; Lorna Payne, president of the SD Industrial Nurses Association; Jeannette George, Olga Fort, Georgette Horton, Dorothy Scrivener.

Dr. A. J. Bellanca, chief physician, headed GD/Astro's contingent. Others were Ardys Smith, Helen Werdelman, Doris Williams, Lorene Miller, Jeanne Lutz, Maude Painter, Helen Flannagan, Gladys Fuller, and Rose Baylor of Sycamore test site.

Remember! Get Your Type II Vaccine

General Dynamics families in the San Diego area are reminded that next Sunday (Dec. 9) is last day to get their Type II Sabin oral vaccine for polio protection.

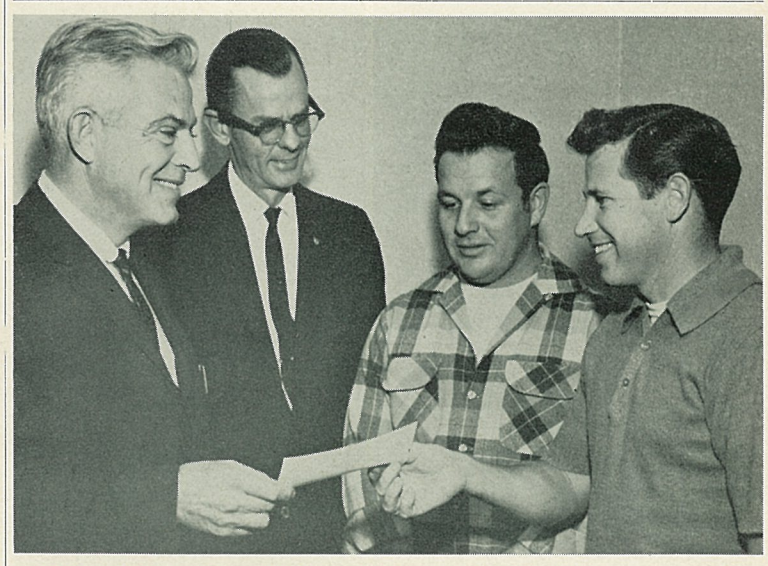
Ninety clinics will be open throughout the county from 11 a.m. to 6 p.m. Only a nominal fee of 25 cents a person is charged.

Even those who failed to get Type I in October are urged to take Type II now. They may then obtain Type I from their family physicians.

Nurses Participate In Candy Campaign

Nurses at GD/Astro and GD/Convair are participating in candy sales conducted by San Diego Industrial Nurses' Association to raise money for educational and charitable projects.

Orders for two types of candy at $1 and $1.50 may be placed with GD/Astro nurses Lorene Miller (BR-8-4627) and Helen Werdelman (GA-2-2254), or Lorna Payne (JU-2-1845) and Alvina Sult (CO-4-9085) of GD/Convair. Dec. 11 is tentative delivery date.



BIG CHECK—Tom Hall and George Burks, right, representing UWA and IAM on Employees' Con-Trib-Club committee, present $4,050 gift to Harry Gauger, chairman of Antelope Valley Community Chest drive as Larry Failor, industrial relations supervisor, looks on. Gift represented $25 per Con-Trib member at Edwards RS where 98 per cent of employees are members. Another check for $750 was presented South Antelope Valley Community Chest in Palmdale.

Sports & Recreation

Sailing Proposed As ARA Activity

Sailing may be added to the list of activities sponsored by GD/Astronautics Recreation Association as result of a meeting to be held at 7 p.m., Dec. 10 in ARA Clubhouse.

Astro sailors — employees or dependents interested in any phase of the sport—have been encouraged to attend to aid in laying ground rules.

Activities are tentatively planned to include three areas: instruction, boat building, and competition. Additional information is available from ARA Headquarters, ext. 1111.

ARA Calendar

(GD/Astronautics Recreation Association has some 40 activities in operation for employees. For information, call ARA Headquarters, ext. 1111.)

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ASTRO PLAYERS — Business meeting 7:30 p.m. today (Dec. 5), ARA Clubhouse.

CHORUS — Astro Notes rehearse 7:30 p.m. Mondays, ARA Clubhouse. Seek new members to participate in caroling at area hospitals.

EXPLORERS—Christmas party 7:30 p.m., Dec. 15, ARA Clubhouse.

GARDEN CLUB — Christmas party tonight (Dec. 5) 7:30 p.m., ARA Clubhouse. Turkey door prices, gift exchange ($1 maximum value).

GOLF—Best ball tournament, Circle "R," Dec. 9. Starting times, ext. 1111.

HI FI/MUSIC — Meeting 7:30 p.m., Dec. 12, ARA Clubhouse. Speaker, Patricia Mayberry.

PISTOL MATCHES—San Diego Police Pistol Range, Home Ave. and Federal Blvd., 9:15 a.m., Dec. 9.

SAILING — Organizational meeting, 7 p.m., Dec. 10, ARA Clubhouse.

SNOW SKI—Meeting tonight (Dec. 5), 7:30 p.m., ARA Clubhouse. Turkey, gift certificate door prizes.

STAMP CLUB—Meeting 7:30 p.m., Dec. 13, ARA Clubhouse. Trading session and election of officers.

TEEN CLUB—Dance 7:30-11 p.m., Dec. 15, ARA Clubhouse. Admission 25 cents. One guest per membership card, sports clothes appropriate.

Badminton Players Awarded Turkeys

Top prizes in ARA's badminton turkey tournament last month went to Bob Holt, Dept. 451-1, and Santosh Rana (brother of Sudhir Rana, Dept. 564-2).

Both received turkeys, while best player awards in the handicap event went to Alex Krohn, Dept. 110-0, and Johnny Grando (son of John Grando, Dept. 146-5).

Badminton Club, under direction of ARA Commissioner Les Marr, holds play night each Monday, 7 to 10 p.m., at the Federal Building, Balboa Park. Additional information is available from Marr, ext. 2731.

Lens Club Members Plan Xmas Party

Astro Lens, ARA camera club, will hold its annual Christmas dinner party at 7:30 p.m., Dec. 16 at Town and Country Hotel.

Program will consist of judging of the best 1962 print and slide by Walter Harvey (APSA) of La Jolla, and a slide show covering ARA Commissioner Ken Rinker's recent vacation trip to the Orient.

Phil Raney, club president, will accept dinner reservations from those who contact him at Plant 2 ext. 1528 by Dec. 14.

Players Sought For New ARA Rugby Squad

An ARA-sponsored rugby team has been organized and accepted as a member of the Club League of the Southern California Rugby Union which swings into league action in February.

Meanwhile, a series of practice and exhibition games has been scheduled for the team, with plans for playing one game per week, if possible.

While enough players have been recruited to form the team, additional players are needed. Naturally, those with experience in rugby are desired, although men who have participated in other team sports may qualify.

Those interested may sign up with ARA, ext. 1111.

Teams in the Union are located throughout the Southern California area and include some top clubs and associations. Although Astro has never fielded a rugby team in the past, indications are that a strong group will be available from those already signed up.

Schedules will be available at a later date, for spectators.

Stamp Club Slates Trading Session At December Meet

ARA Stamp Club will meet only once during December, cancelling one meeting in view of impending holidays. Next meeting of the group is slated for 7:30 p.m., Dec. 13 in ARA Clubhouse.

This meeting will emphasize a trading session, and will also include election of 1963 club officers. A $10 gift certificate will be awarded as door prize.

At the final November meeting, Brad Williams was winner of a Thanksgiving turkey. This session also found Abe Hurlich appointed club secretary-treasurer.

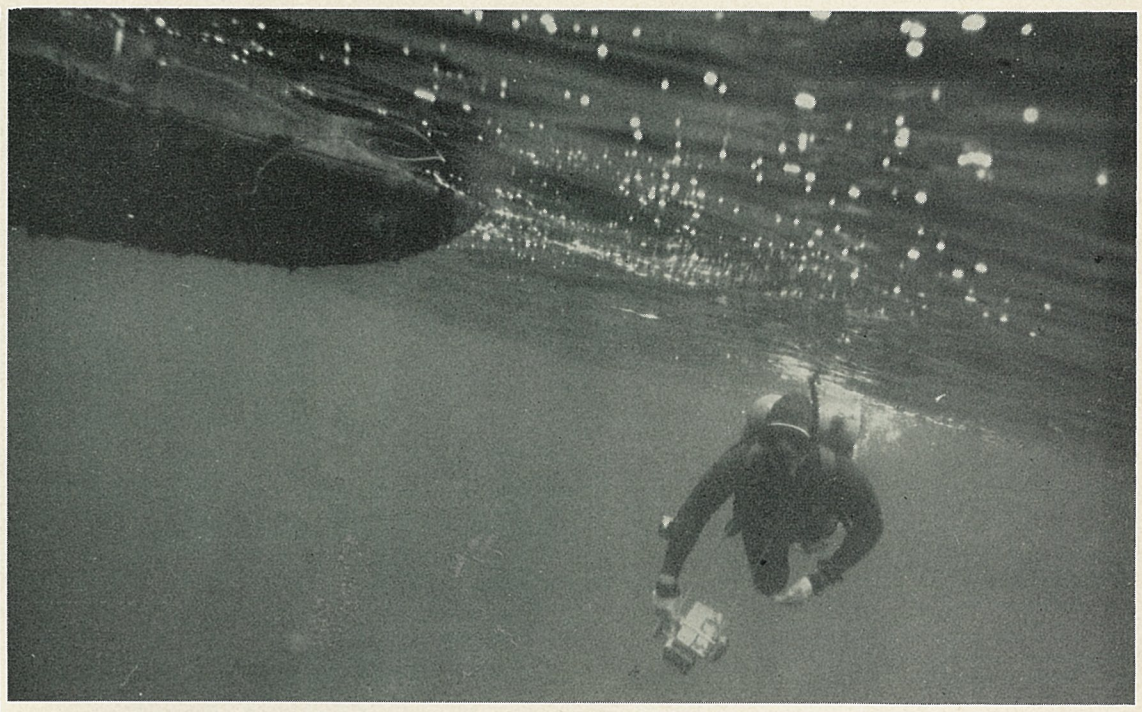
Art King, ARA commissioner, has announced that 1963 Scott catalogs are now available for members' use.

Hi/Fi Music Club Will Hear Expert

Guest speaker at ARA Hi-Fi/Music Club's meeting at 7:30 p.m., Dec. 12 in ARA Clubhouse, will be Patricia Mayberry, music instructor with an impressive background of training in this country and abroad.

She will discuss selection of music for high fidelity reproduction, particularly in terms of instrumentation.

Ben Lachance is ARA commissioner.



SOGGY SNAPSHOT—Underwater photography is of growing interest for Astro Divers, ARA skin-diving club. Member Bob Nicholas used club-owned camera in underwater housing to take this shot of fellow SCUBA enthusiast.

Teams Roll In 4th Annual Keg Tourney

From the largest field ever entered in an ARA-sponsored bowling tournament champions are now being selected in the Fourth Annual Plant Championship Bowling Tournament under way at Clairemont Bowl.

Fifty-three teams took part in opening events over the past weekend (Dec. 1-2).

Next weekend (Dec. 8-9) some 300 singles and 150 doubles combinations will roll for honors in these divisions.

Champions are to be crowned in all-events, men's and women's singles and doubles to join both men's and mixed team champs determined over the past weekend.

Leading men's and women's teams will be eligible to represent ARA in a telephonic tournament slated to be held in February in conjunction with the Western Region National Industrial Recreation Association conference to be held in San Diego.

Players Complete Successful Run

Stage lights dimmed for the last time Sunday (Dec. 1) concluding a six-performance run of Astro Players' comedy production "Roman Candle."

With the applause of near-capacity audiences still echoing in their ears, Astro Players members will "settle down" to regular monthly business meetings, and weekly workshop sessions to begin soon.

First post-performance meeting is scheduled tonight (Dec. 5) at 7:30 p.m. in ARA Clubhouse. The group is open to all Astro employees and members of their families.

Plans call for a mystery as the group's next play to be staged in late February.

Beginner's Luck? Pooh! Parade Entry a Winner

Other less successful entrants may claim "beginner's luck," but the dozens of GD/Astro employees who contributed to ARA's entry in the recent El Cajon Mother Goose Parade say otherwise.

"It was hard work and the pooling of many talents which won the Parade's Sweepstakes Award for ARA's float, 'Three Blind Mice,'" said C. M. "Chuck" Ogle, who originated the idea for the float and guided construction efforts.

This was ARA's first try at float-building. In winning the Sweepstakes Award, its entry met and bested all other Mother Goose-theme floats in a list of 116 units.

"I wish to thank everyone who contributed so faithfully to making our entry a complete success," Ogle said.

Singled out for special praise were Rube Crossman and Bill Johnson who cooperated on mechanical aspects of the project, and Gerry Peddie for design work.

Also lauded were D. A. George and members of ARA Arts and Crafts Club for assistance in decorating; members of Astro Wives' Auxiliary who made more than 5,000 crepe paper roses which trimmed sides of the float; and Bill Gallien who handled welding on the float frame.

Invaluable throughout the building task was ARA carpenter Jerry Starkey.

"Boys next door" who helped Ogle with the papier mache figures which animated the display were John and Del Creighton. They also assisted in guiding the float through the parade route.

(This was no mean trick. As driver, Ogle was seated in the float's mid-section with limited view forward. He was coached through the route by the Creighton boys, lying on a concealed platform near the front of the float and talking to him by telephone to guide the way!)

Also in the parade were a covered wagon and a "surrey with a fringe on top," units of ARA Riding Club. They received participation awards.

As for "Three Blind Mice," its future is bright. Last weekend it rolled in the North Park Toyland Parade, and other requests for its appearance have been received.

Explorers Visit Old Mining Site

Old mines, mining equipment and former dwellings constituting the Dale Ruins were investigated by ARA Explorers on an excursion held Dec. 1-2.

This area is about 15 miles east of Twentynine Palms and was once a famed gold mining area.

Explorers devoted their November trip to a visit to Santa Rosa Mountain and through miscalculations spent an extra day in the area.

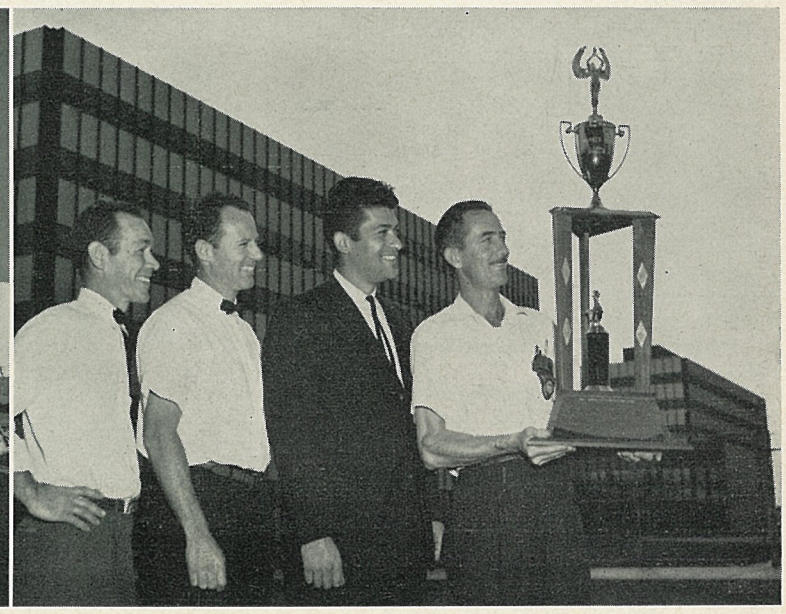
Over the New Year's weekend a trip is planned for the Colorado River area. This will follow a Dec. 15 Christmas party to be held in ARA Clubhouse. Information on this group is available through Paul Du Pre, ext. 1954, Plant 1.

HOLIDAY LUNCHEON PLANNED BY WIVES

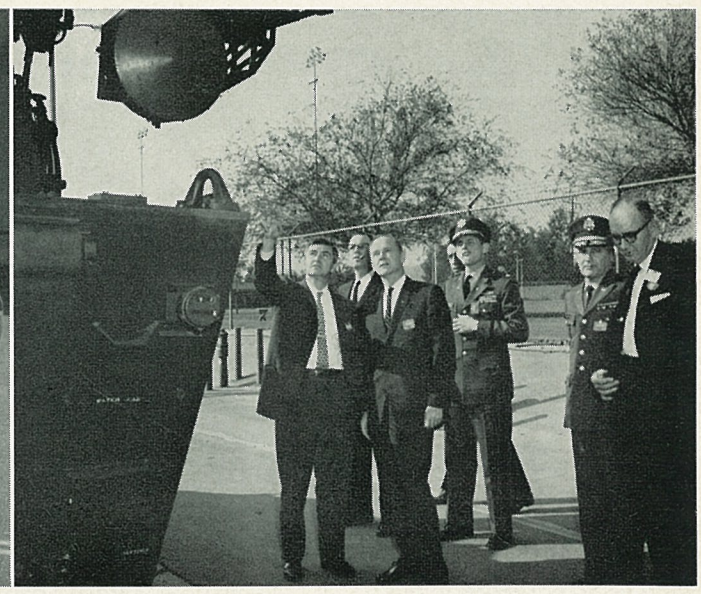
A Christmas luncheon has been set by Astro Wives Auxiliary for Dec. 12 at Honkers Restaurant, La Jolla. Social hour is at 11:30 a.m., lunch at 12:30 p.m.

Those attending will bring a $1 exchange gift.

Reservations may be made by contacting Peggy Ferriera, BR-3-7634, or Hazel Hanson, JU-2-7843.



PARADE WINNER—ARA entry in El Cajon Mother Goose Parade was best of all parade entries and took sweepstakes prize. Some of key figures in design and construction admire trophy in photo at right. They are R. T. Crossman, G. D. Peddie, D. A. George, C. M. Ogle. Float was photographed beside ARA Clubhouse. It is slated for future appearances in area parades.



ARMY VISITORS—In center, C. F. Horne, GD/Pomona president, greets Dr. Finn J. Larsen, Assistant Secretary of the Army, Research and Development, on mid-November visit for review of Redeye and Mauler programs. At left Horne greets Col. Brookman R. Painter, commanding officer, Los Angeles Procurement District, and Col. Elmer H. Almquist. Photo at right shows J. M. Guthrie, left, assistant director weapon systems engineering (Dept. 7) explaining Mauler.

Cameras Click Every 30 Seconds To Record Radar Conformance

A photographer turned "quick change artist" recently as he kept cameras clicking every 30 seconds for half an hour at a time while recording conformance tests of a General Dynamics/Electronics REINS radar assembly.

When GD/Electronics product test engineers were faced with the task of recording data from 11 meters simultaneously, they solved the problem by calling in the GD/Convair photo lab.

The readings, such as voltage, current and power consumption, had to be absolutely accurate and had to be taken at the exact split second of time, explained Charles Ashworth Jr., GD/E test engineer assigned to the project. Time spent by 11 persons, each trying to take down data from a meter apiece, would pile into a lot of manhours; fatigue or misjudgment of timing could well result in errors and reruns.

A photographic record, caught securely on irrefutable film, seemed the best solution.

GD/Convair cameraman Pete Autio, assigned to the fast-clicking job, used two Rolleiflex cameras and 50 rolls of film, 12 exposures to the roll, to capture the vital statistics. Cameras were reloaded and exchanged without missing a beat.

It took 3 seconds to exchange cameras and clamp on the tripod with a special quick change head developed in the GD/Convair photo lab just for such continuous procedures.

As Autio clamped on the newly-filled camera, Ashworth took over for one click giving the GD/Convair photographer a full minute to reload the second camera and get back to his post for the next exposure. This teamwork interchange continued for 5 hours to complete the entire test.

Ashworth, who reports to B. A. Ledbetter, product test assistant group engineer, was more than satisfied with the photographic recording experiment.

He now has 50 strips of negatives with 600 different dial readings, including a clock with exact time of each reading. He uses a binocular microscope to magnify the images and read off the data. After it is plotted into curves it will be forwarded to North America's Autonetic Division, prime contractor, to comply with Navy requirements.

Product test, under K. W. Strowig, manager, is responsible for checkout of all products built by GD/Electronics to see that they comply functionally with required military and customer specifications. It is a section of reliability and quality control department, directed by H. J. Stuart, manager.

Institute Offering $8,300 Scholarship

General Dynamics employees may be interested in trying for a scholarship for two years of graduate study at Princeton University, offered by the Institute of Aerospace Studies in the field of flight test engineering.

The study fellowship is worth $3,600 the first year and $4,700 the second and must lead to a master's degree or doctorate in engineering. Qualifications include a bachelor's degree in engineering and American citizenship.

Application forms may be obtained from Flight Test, Institute of the Aerospace Sciences, 2 East 64th St., New York 21, N.Y. Requests must be endorsed by a General Dynamics supervisor. Closing date for applications is March 1, 1963.

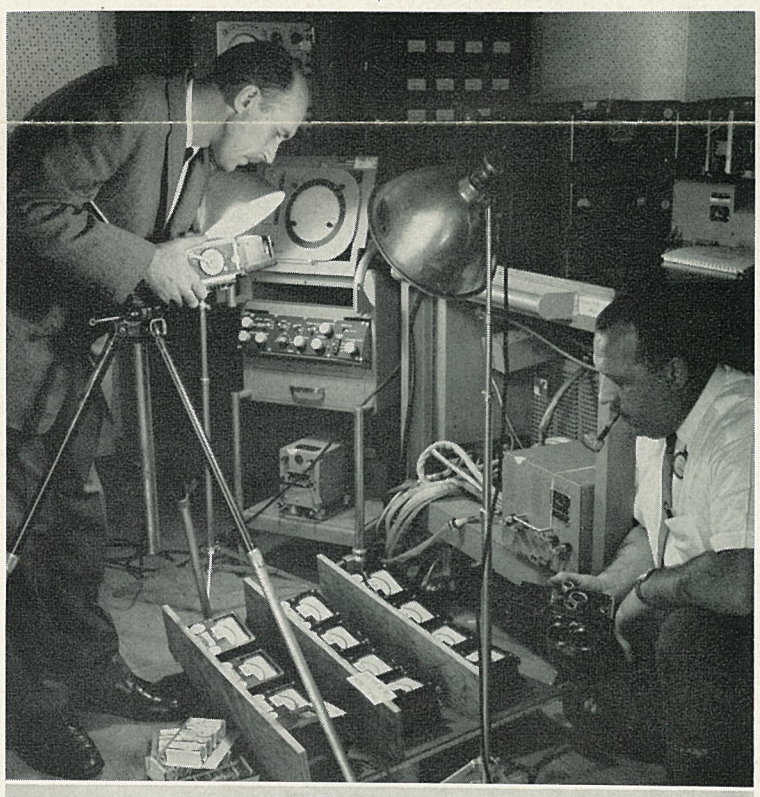
Astronautics employees may view a brochure describing the fellowship by contacting Dean McCoy in engineering office services.

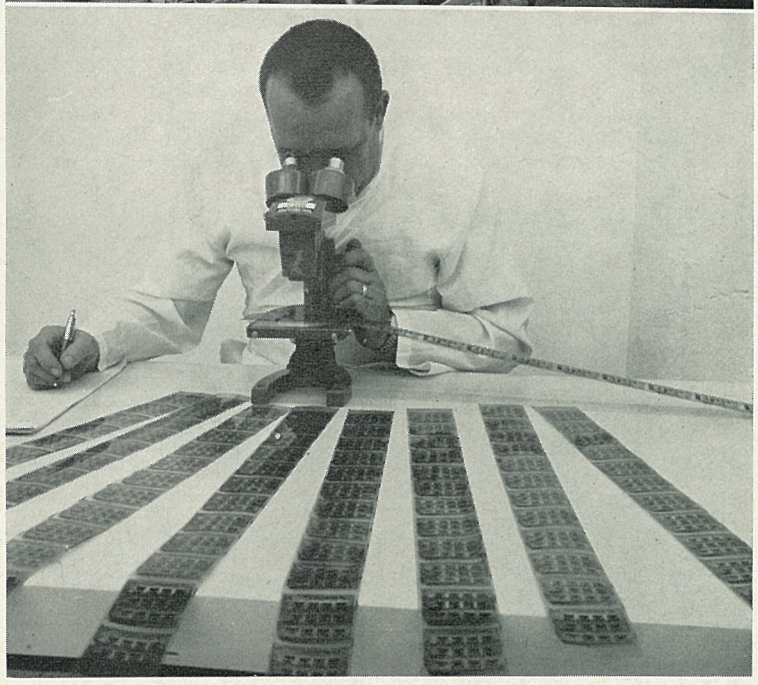
Contract Awarded On Engineering Bldg. At GD/Electric Boat

The Turner Construction Company of New York has been awarded a contract to build a four-story engineering building at General Dynamics/Electric Boat, Groton, Conn.

The brick structure will provide an additional 70,000 square feet of floor space for the design department and nuclear engineering projects. To be built on company-owned property on the west side of Eastern Point Road, the building will adjoin the north side of an existing design department building constructed in 1956.

Construction will begin immediately. The building is scheduled for completion early next spring.





FAST CLICKING—Lensman Pete Autio (top photo) is snapped by GD/Convair cameraman Ernie Flisrand during steady photographing—every 30 seconds—of 11 meters as they record data in GD/Electronics radar assembly conformance checkout. Kneeling at right is Charles Ashworth Jr., GD/E test engineer assigned to data recording project. Below, Ashworth studies film strips under microscope.

GOING ABOARD—Dr. Finn J. Larsen, Assistant Secretary of the Army, Research and Development, climbs into operator's compartment of Mauler during visit to GD/Pomona.

Assistant Secretary Larsen Sees Mauler on Pomona Trip

Dr. Finn J. Larsen, Assistant Secretary of the Army, Research and Development, visited General Dynamics/Pomona Nov. 15 as a part of an inspection tour of U. S. Army weapon programs.

Purpose of Dr. Larsen's visit to Pomona was to review Redeye and Mauler programs currently in the development phase.

Redeye is a shoulder-fired weapon designed for anti-aircraft protection of infantrymen. Mauler is a self-propelled weapon system designed for battlefield air defense.

Dr. Larsen was accompanied to Pomona by Col. Elmer H. Almquist, Col. Barton O. Baker and Lt. Col. William O. Perry Jr., from the Department of the Army Staff, Washington, D. C.

Also on the Pomona tour with Dr. Larsen were Col. Brookman R. Painter, commanding officer, and Maj. Joseph M. Saye, adjutant, of Los Angeles Procurement District, Pasadena, and L. L. Gober, deputy project manager, Army Missile command, Redstone Arsenal, Ala.

GD/Astro Working on Problems Of Moon Craft Return to Earth

While considerable emphasis rests on sending manned spacecraft to the moon, General Dynamics/Astronautics has been tabbed for an important role in a related endeavor — getting it safely back!

This is "Project Fire."

Astronautics will integrate all flight vehicles and systems under direction of National Aeronautics and Space Administration's Langley Research Center. This is the initial flight program to be conducted specifically for studying high velocity re-entry problems of spacecraft returning from the moon.

"Project Fire" will utilize an Atlas space launch vehicle, a velocity package (Chance Vought) and a re-entry vehicle (Republic Aviation). Atlas will carry the combination to a desired point in space on the required trajectory, then fire its retrorockets while the remainder of the system continues in free flight. Before re-entry, a 180-rpm spin will be imparted to the system for added stability as the velocity package hurtles the 250-pound, blunt-shaped re-entry package down into the atmosphere at moon-to-earth velocity.

As the re-entry vehicle speeds toward the earth at 25,000 mph, it will transmit data to ground and ship stations on such subjects as heating, materials response and radio blackout.

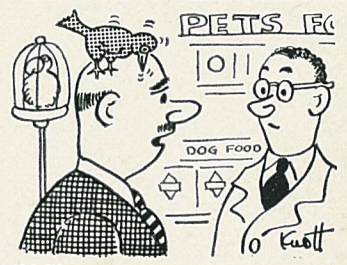
Two launchings are programmed for late 1963. They will begin at Cape Canaveral and terminate 5,200 miles down range over the Atlantic Missile Range.

Astronautics, operating under a contract with the Air Force Space Systems Division, will integrate all flight systems and will conduct launchings, under NASA direction.

At Astronautics, "Project Fire" is under jurisdiction of the space launch vehicle project organization headed by C. S. Ames, vice president and program director. L. E. Munson is assistant program director for "Project Fire."

Langley Research Center has named Herbert A. Wilson as project manager for this effort.

Astronautics will monitor integration and operational activities of the companies involved on all systems and subsystems scheduled for "Project Fire."



"I'd like to exchange this woodpecker for some other kind of pet."

GD

ASTRONAUTICS EDITION
(OFF-SITE)

GENERAL DYNAMICS NEWS

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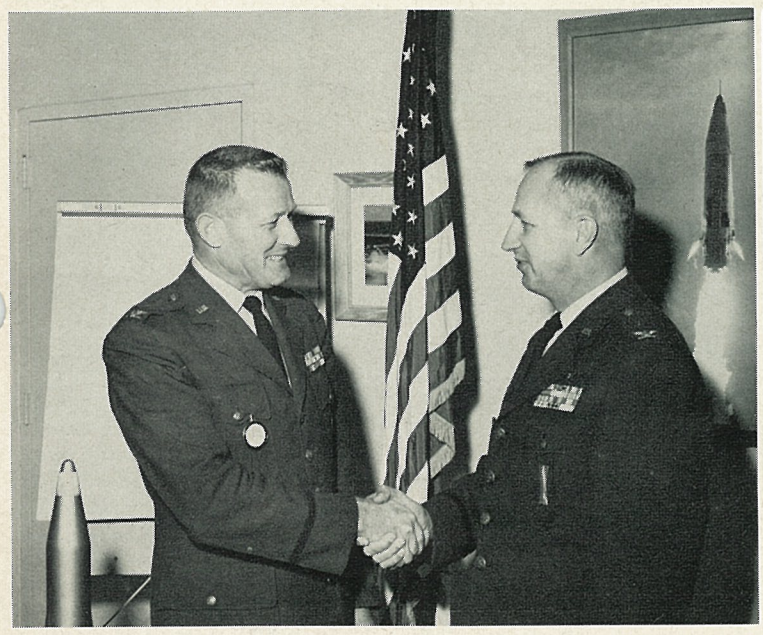

WELCOME ABOARD—Col. Malcolm K. Andresen, right, is welcomed to new post as Air Force Plant Representative at GD/Astronautics by Col. H. E. Moose. Col. Andresen is veteran of Atlas program. Col. Moose is retiring following service as first and only AFPR at Astro with duties dating back to 1958.

Col. Andresen Selected To Relieve Col. Moose

General Dynamics / Astronautics has "welcomed aboard" a veteran of the Atlas program as its new Air Force Plant Representative.

He is Col. Malcolm K. Andresen.

Col. Andresen replaces Col. H. E. Moose who has retired after serving since 1958 as Astronautics' first and only AFPR.

For the past four and a half years Col. Andresen has served as assistant deputy for the Atlas program at the Ballistic Systems Division, Air Force Systems Command. He formerly served as an Air Force representative at Ford Motor Co., Studebaker Co. and Fairchild Corp.

A native of Eugene, Ore., he is a graduate of the University of Oregon, the U. S. Army Command and Staff School and the Air Force Command and Staff College.

Col. Andresen entered the Air Force at the outbreak of World War II and flew combat bombardment missions in the European theater. He then completed three consecutive assignments to re-establish Air Force industry potential at the onset of the Korean hostilities and then flew combat missions in the Korean action.

Material Operations Merged Into Single GD/Astro Dept.

An enlarged material operations department has been created at General Dynamics/Astronautics through consolidation of two major departments, plus similar functions from another.

Named manager of material operations is R. E. Poling who reports to E. D. Bryant, vice president—operations.

R. E. Poling

Integrated into material operations were the former material operations and production control departments. Also, material operations and production control units formerly a part of product support department.

Reporting directly to Poling are: D. F. Kline, chief of dispatching and WIP stores; F. J. Parker, chief of material stores and traffic; R. R. Tompkins, chief of material control; T. F. McAleer, chief of shop ordering and release; and R. E. Sabin, chief of operations scheduling.

Under the realignment material project administrators formerly reporting to the director of material now report to Poling.

The former product support manufacturing control function is now a part of dispatching and WIP stores with Otis Tucker as a general foreman under Kline. Shipping, traffic, material staging and service parts inventory functions of product support are now a part of material stores and traffic with G. E. Garrison as general foreman.

In other changes the support operations section of product support has been shifted to assembly and fabrication department. W. W. Pierce is now superintendent of assembly and fabrication at Plant 2, reporting to J. P. Hopman, factory manager—assembly and fabrication. H. C. Medearis is general foreman of support operations. Ray Kendall, general foreman of tank assembly, also reports to Pierce.

Product support center planning, estimating and task control functions at Plant 2 are now a part of operations control with R. Hughes, assistant supervisor, reporting to T. F. McCubbin.

Tooling and planning functions of product support have shifted to production engineering with organizations headed by W. Bailey Jr. (support projects) and H. Nisbet (support planning) reporting to C. C. Pope, tool project engineer.

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PRODUCT SUPPORT GROUPS REALIGNED

Consolidation of product support department with operations department, plus a series of subsequent changes, have led to a realignment of remaining product support functions.

E. A. Reynolds, director of product support, continues as head of this function, reporting to E. D. Bryant, vice president—operations.

Reporting to Reynolds are:

A. H. Gross, manager of support publications, which also in-

(Continued on Page 2)

Needy Family Aid Organized Through CTC

General Dynamics / Astronautics departments have again "pitched in" to aid less fortunate San Diego families at Christmastime.

Department "adopt-a-family" efforts are coordinated by a GD/Astro Employees' Con-Trib-Club committee headed by Don Glasser. He is assisted by Herb Rasp.

Earlier this year, Con-Trib began screening GD/Astro families who suffered severe economic reverses during the year due to illness, disaster, etc. Other non-employee families were nominated for aid by Salvation Army.

If a department wishes to "adopt" a family for the holidays they are asked to examine—anonymously—the files of several needy families. Once they make a choice, the family is identified to them and they assume responsibility for providing "Christmas with all the trimmings."

While the major portion of this effort is carried by the department, limited financial aid is available from coins collected in candle-shaped receptacles throughout the plant, and from money tossed into the reflection pool in the Bldg. 2 lobby.

Departments wishing to adopt a needy family, or employees who know of GD/Astro families requiring aid, have been asked to contact Glasser at ext. 1261, or Rasp at ext. 2855.

CHRISTMAS CANDLES—Herb Rasp, Don Glasser and A. B. Drastrup, all Dept. 250, display candle-shaped coin receptacles now in place throughout plant. Astro Employees' Con-Trib-Club will use funds, as well as coins in lobby reflection pool, to aid needy during holiday period.

Merry Christmas To GD/Astro

As another year of peace draws to a close, we of General Dynamics/Astronautics share a just pride in our accomplishments. The products of our hands and our minds continue to mean much to the security and future of our nation and free men everywhere.

It is my personal wish, and that of my staff, that the joys of family, of giving, receiving and sharing be yours to the fullest in this traditional season of Peace.

J. R. Dempsey
President,
General Dynamics/Astronautics

GD/Astro to Issue All New Badges

New identification badges are being prepared for General Dynamics/Astronautics which will serve the triple purpose of badge, identification card and security clearance.

Distribution through departments will begin shortly and require about 90 days for completion, according to William E. Bowman, manager of industrial security.

Approximately 2 x 3 inches in size, the new badges will have the corporate name, the employee's photograph and number on the front. A physical description and return address will be on back, along with a handy clip.

Two small areas on the front will contain a wealth of information. One area is a small disk with colors denoting level of security clearance. The other is a small button with a printed department number. Background colors on the latter will designate jobs. That is, hourly employees will wear yellow, green or white, dependent upon first, second or third shift. Professional and administrative (salaried, non-supervision) employees will no longer have "candy striped" designation, but blue. Supervisors will continue to have red.

Preparation is progressing in employee alphabetical order. Badges will be forwarded to departments as quantities accumulate. Departments will exchange new badges for present badges, "ID" cards and security cards. During the transition, both types of identification will be acceptable.

Air Force, NASA and associate contractor personnel assigned permanently to Astronautics will receive similar badges.

COMING SOON — Frances Stoltz of Astro industrial security holds group of new badges to be issued soon to all employees.

EXPERTS BRIEFED ON ATLAS SLV III

Technical experts representing Air Force, NASA and government contractors received briefings on General Dynamics/Astronautics' modified series "D" Atlas and the new Atlas space launch vehicle, SLV III, early this month.

During three days of meetings at GD/Astro's Kearny Mesa plant, they were provided with detailed technical information by top Atlas engineers and program executives. They toured Atlas fabrication and final assembly areas, electronics manufacturing area, and GD/Astro's Sycamore Canyon Test Facility.

SLV III consists of the basic Atlas airframe and the MA-5 liquid propellant three-engine cluster capable of 390,000-pounds of thrust.

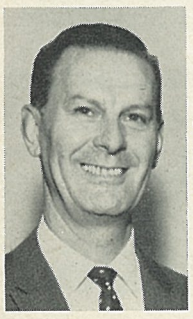
Standardized guidance, electrical system, autopilot, tracking and telemetry kits will be provided by SLV III. Installation of the appropriate kits tailors each vehicle to its mission and the launch pad to be used.

Covered during conference sessions were all major Atlas space launch vehicle systems, including propulsion, hydraulics, flight control, guidance, telemetry, propellant loading, launcher and electronic systems.

CHRISTMAS CHEER—General Dynamics divisions this week exchange Christmas greetings. Adding beauty to Christmas sentiments are Darleen Elson and Nelda Larance, both in Centaur project at GD/Astronautics.

Log Book Entries

Service Emblems



Sam Galasso, GD/Astro Dept. 344-3, received 25-year emblem recently from President J. R. Dempsey.

MAIN PLANT

Service emblems due during the period Dec. 16 through Dec. 31.

Twenty-five-year: Dept. 671-1, Cecil Flowers.

Twenty-year: Dept. 144-1, N. W. Lenten; Dept. 223-2, W. A. Dickenson; Dept. 756-0, J. M. Rice.

Fifteen-year: Dept. 142-5, Violet D. Hodges; Dept. 369-2, M. R. Burris; Dept. 382-1, Hector Islava; Dept. 451-0, E. E. Cooper; Dept. 756-0, Samuel Montoya; Dept. 758-0, C. B. Herndon, R. A. C. Perry; Dept. 759-0, R. J. Folstad.

Ten-year: Dept. 032-2, Albert Roth; Dept. 105-0, Madonna J. Sisler; Dept. 140-0, Mary Lou Stone; Dept. 141, Ralph Avitable, E. B. Weaver; Dept. 151-0, G. M. Alford; Dept. 171-0, R. J. Waller; Dept. 222-3, Irma M. Williamson; Dept. 382-3, C. C. Dagley; Dept. 401-2, C. V. Parsons; Dept. 452-0, V. R. Sampson; Dept. 526-8, Carole J. Clark; Dept. 568-4, R. D. Dickens; Dept. 781-0, Dorothy M. Kassmann; Dept. 851-1, D. E. Ebert; Dept. 951-3, C. C. Lingenfelder; Dept. 975-5, P. H. Ayer.

DYESS AFB

Ten-year: Dept. 618-2, C. C. Cope.

PLATTSBURGH AFB

Twenty-year: Dept. 620-9, N. L. Buchmiller.

Fifteen-year: Dept. 620-4, W. P. Uerkvitz.

SYCAMORE

Ten-year: Dept. 573-3, Nathaniel Willingham.

WALKER AFB

Fifteen-year: Dept. 619-0, C. A. Bashore.

Ten-year: Dept. 619-2, N. E. Brandon, E. J. Conway.

Promotions

MAIN PLANT

Promotions to or within supervision effective Dec. 3.

Dept. 126-0, Communication: To art direction asst. supervisor, B. S. Brockett.

Dept. 145-0, Reliability Control Engineering: To reliability group engineer, J. H. Rusk Jr.

Dept. 146-0, Failure Analysis and Data Center: To reliability asst. group engineer, H. F. Dean.

Dept. 170-0, Organization and Systems: To organization and systems supervisor, K. D. Saum.

Dept. 194-0, Budgets: To budget supervisor, R. M. Naffke.

Dept. 322-7, Support Publications: To support publications supervisor, J. D. Rowland. To support publications asst. supervisor, W. E. Sagor.

Dept. 364-0, AWS Contracts: To chief of contracts, G. P. Delp.

Dept. 521-6, Engineering Administration: To engineering services asst. supervisor, B. J. Upton.

Dept. 643-0, SSLV Contracts: To chief of contracts, J. H. Edwards, I. U. Eggert Jr. To contract administrator, F. Tschopp.

Dept. 966-3, Centaur Engineering: To thermodynamics group engineer, G. C. Wilson.

Dept. 972-0, Centaur Manufacturing Operations: To asst. foreman, E. H. Johnson.

AFMTC

Dept. 571-6, GD/Astronautics Operations: To program project supervisor—base, L. D. Messacar. To timekeeping asst. supervisor, L. L. Williams .

Births

MAIN PLANT

DILLER—Daughter, Leslie Anne, 5 lbs., 11 oz., born Dec. 1 to Mr. and Mrs. Paul A. Diller, Dept. 193-1. Grandfather is Don E. Diller, Dept. 597-3.

SILVA—Son, John Gregory, 8 lbs., 8½ oz., born Nov. 8 to Mr. and Mrs. Stanley J. Silva, Dept. 223-3.

Deaths

MAIN PLANT

CAMPBELL—Roy C. Jr., Dept. 332-5. Died Dec. 6. Survived by father, Roy C. Campbell Sr.

ROBERTS—Jack K., Dept. 541-0. Died Nov. 30. Survived by wife, Melinda and two daughters.

VANDENBERG AFB

HERIC—William J., Dept. 576-4. Died Nov. 18. Survived by mother, Mrs. Lucille Heric.

MILLER—A. J., Dept. 682-1. Died Dec. 7. Survived by wife, Dickie L.

Personals

MAIN PLANT

I wish to express my heartfelt thanks for the kindness shown me at the death of my husband, Leo J. Mueller, formerly of GD/Convair.

Marjorie E. Mueller,
GD/Astro Dept. 191-0.

VANDENBERG AFB

Your kindness and sympathy are deeply appreciated. Thank you for your remembrance in memory of our Bill.

Mrs. Lucille Heric, Mrs. Beatrice Dobson, Mrs. Jacqueline Sohl, Irvin Heric.

Prod. Support Depts. Changes

(Continued from Page 1)

cludes both publications control and support publications groups formerly a part of support engineering.

R. W. Lessard, manager of suport engineering, that now includes support systems engineering and field and service engineering.

K. R. Aiken, manager of support logistics.

A support operations control chief to be named. C. C. Campbell, support project engineer, is responsible for support project office in this group.

W. E. Magnuson, chief of support publications quality assurance. W. P. Maloney, who formerly headed this group is being reassigned for reasons of health.

EDWARDS' SAFETY MARK RECOGNIZED

EDWARDS RS — Last month General Dynamics / Astronautics employees here moved into their third year of work without a lost-time injury.

A special safety trophy symbolic of the two-year injury-free period was recently presented to V. L. Allwardt, who heads operations here, by Grant L. Hansen, vice president and program director-Centaur.

Safety has long been a key factor here with only seven lost-time accidents recorded over a period of six ylears.

Trophies for outstanding safety records were won here in 1958, 1960 and 1961. In 1960 an off-site base safety award was also won.

PROUD MOMENT—Grant L. Hansen, left, vice president and program director—Centaur, presents special safety trophy to V. L. Allwardt who directs Astro's Edwards RS operations. Trophy was symbolic of two years with no lost-time injury and represents 174,099 manhours worked.

CHEUNG NAMED ASST. DIRECTOR

L. T. Cheung has been named assistant program director—Nike Zeus, reporting to W. L. Van Horn, vice president and program director—Atlas weapons system at General Dynamics/Astronautics.

Cheung replaces Ernest Wade, now chief engineer—development design.

A native of Canton, China, and graduate of Purdue University, Cheung began his career with GD/Convair in 1943 and held various engineering positions until 1946 when he returned to China to head his own engineering and consulting firm in Hong Kong. He returned to the United States in 1953 and rejoined Convair in 1955. In 1956 he shifted to the Atlas project and worked as a senior structure engineer, assistant project engineer and more recently as a project engineer.

Scholarship Grants Go to Nine Students

Nine San Diego State College students have been awarded scholarships for the current semester by General Dynamics/Astronautics.

Scholarships are for $75 each, and are awarded on basis of aptitude, scholarship, and likelihood of success in a chosen field. They are renewable for each semester of undergraduate work if scholarship standards are maintained.

Current grants went to Fred O. Andrews, accounting; Robert Becker, Richard S. Wayne and Bruce H. Weber, chemistry; Howard J. Bryant and Audrey J. Knauer, physics; John J. Emerich and Oliver L. Frey, engineering; and Robert R. Smith, mathematics.

Annual Controller Dance Postponed

Controller department employees at General Dynamics/Astronautics have elected to delay their annual dance until shortly after the first of the year, according to F. A. Fox, general chairman.

"We feel a much better dance can be staged after the busy holiday season," Fox said. "Tentative plans call for a February dance with a Valentine theme."

GIFT SELECTION—Choosing clothing to be given young guests at GD/Astro Christmas party was handled by volunteers from Astro Wives Auxiliary. Shown making selection recently at May Co. store are Mrs. Kay Choenbeck, saleslady; Mrs. H. E. Koehne, Mrs. O. C. Priest, Mrs. Howard Sloan of Salvation Army, and Mrs. Martha Buchan.

Teen-Age Xmas Party Takes Place Saturday

Gifts have been wrapped and the stage is set for the annual General Dynamics/Astronautics Christmas party for needy children which comes off from 5 until 8 p.m. Saturday (Dec. 22).

Volunteers turned out last Monday to wrap and tag all gifts and set up final plans for the party.

On Saturday some 154 youngsters in their teens will arrive at ARA Clubhouse for three hours of special events that will be climaxed by presentation of gifts.

The annual affair is a coordinated effort involving many. Con-Trib-Club provides funds. Salvation Army supplies names of the needy and helps stage the affair. ARA and its Wives Auxiliary conduct the party. Many other groups help. Prophet Co. and its suppliers provide food, prepare and serve it as part of the festivities. Davidson Brothers presents sweets and buys game prizes.

This year marks the initial time in which teen-agers have been feted. Previously, pre-teen-agers were guests. This year Salvation Army asked sponsors to consider the older group, since they are most likely to be overlooked at Christmas.

Gifts this year will include a complete outfit of clothing for each boy and girl, plus a special gift. The latter was purchased by the Wives Auxiliary with proceeds from a recent card party.

Score of Supervisor Trainees Continue Class 'On Their Own'

The era of the "self-made man" is far from past, according to 19 General Dynamics/Astronautics employees.

At a point in their careers when many might choose merely to "sit and wait," this group is forging ahead in a cooperative self-improvement effort.

Each of the 19 is a potential supervisor. After their departments nominated them as supervisory candidates, they entered and completed the first phase of the program provided by management development group of educational services (Dept. 130-3).

Each was interviewed and tested extensively; then completed management development's 20-hour course in basic leadership, conducted by John Lockwood, management development specialist.

Next step, normally, would be a period of waiting. They would return to their jobs until their final selection as supervisors.

This group, however, chose another course.

As the leadership class drew to a close, they discussed the forthcoming interim period and decided to join forces to continue improving their capacity for supervisory roles—on their own time.

A committee was formed to plan monthly "pre-management seminars." Educational services provided a classroom as a meeting place. The group selected a textbook, with individuals providing copies at their own expense.

Seminar chairman is W. D. Parker, Dept. 971; J. T. Crane, Dept. 567-3, handles programs; Bill Evans, Dept. 662-9, coordinates training aids; and L. D. Brown, Dept. 654-1, is secretary.

At its first meeting last month the group heard each of its members present a short paper on individual benefits desired from the program; a movie on management communication was shown; and a discussion centering on their textbook was held.

In future sessions, each participant will have an opportunity to "carry the ball" in the information interchange.

Other members of the group include J. J. Andrews, R. S. Bouton, J. F. Conly, J. A. Denneny Jr., R. R. Heary, T. L. Lamoureux Jr., D. E. Lawrence, R. C. Meyer, John Prunty, K. S. Telfer, T. P. Tompkins, Sam Weiss, D. R. Wright, C. A. Young, Jim Grochowski and Lockwood.

TOMORROW'S LEADERS—Chairman Dale Parker (at blackboard) opens first session of pre-management seminar, conceived by group of GD/Astro candidates for supervision as continuing effort at self-improvement. Group organized at completion of 20-hour leadership class which was part of formal management development program.

Save Materials—Don't Throw Your Job Away

General Dynamics NEWS

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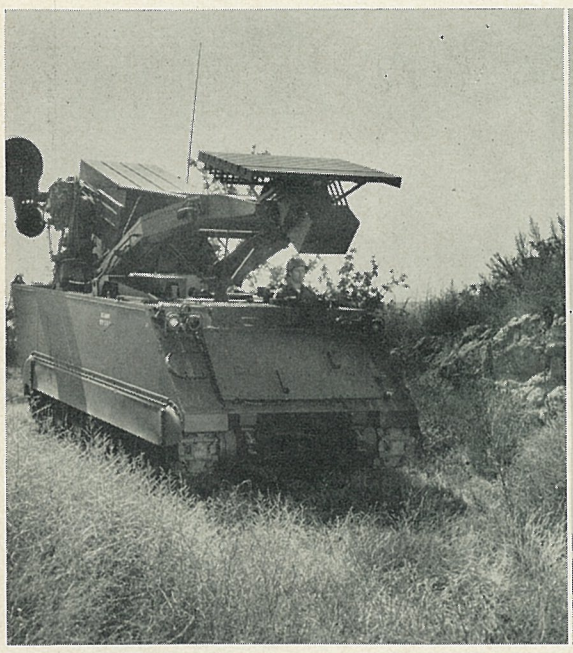
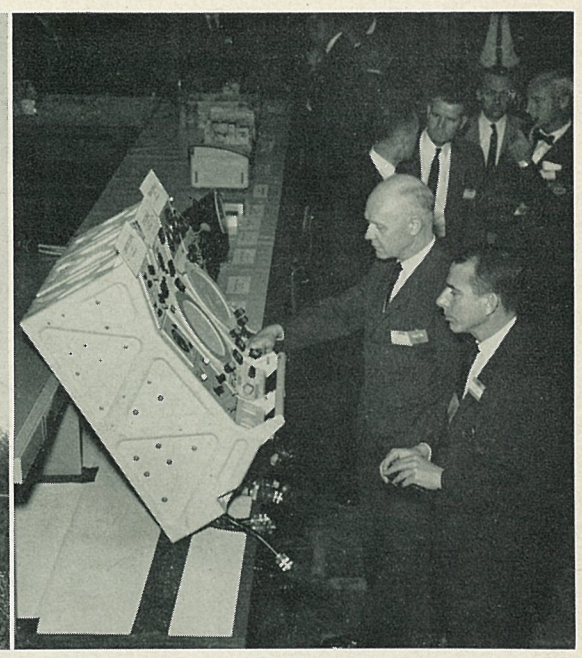




DEFENDER—Above left is engineering model of self-contained Mauler air defense system with weapons and tracking equipment in stowed position as it would be when loaded aboard aircraft. Mauler is under development for U.S. Army at General Dynamics/Pomona. In center photo mockup of guided missile in shipping container is being loaded. At right W. J. Morrow (right), director of Army weapon systems at GD/Pomona, shows Lt. Gen. H. T. Alness, director of Army's weapons systems evaluation group, some of Mauler equipment. Mauler missiles use solid fuel, are radar guided for use against tactical aircraft, short-range missiles and rockets.

Reliability Called a Matter Of Individual Responsibility

"Reliability, to me, means INTEGRITY!" said Helen Sunblade, statistical technician in GD/Convair quality control, one of nearly 1,000 people who have attended the division's Space Age Reliability training course.

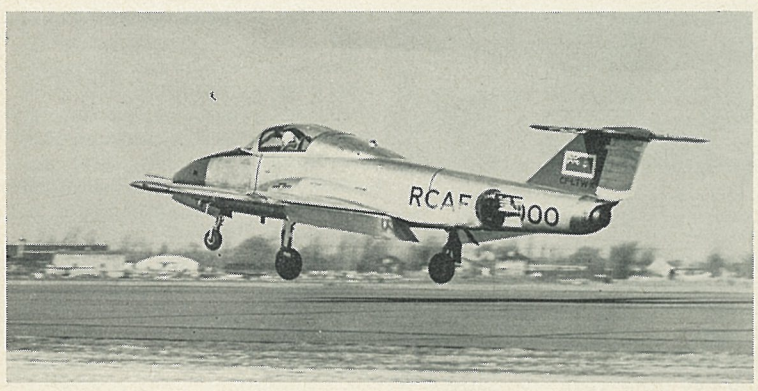
"Each of us is responsible for every process that passes through our hands. We can not expect anyone else, either the person behind or the one ahead in the chain of procedure, to double check and correct an error made by someone else.

"It is MY responsibility to be accurate!

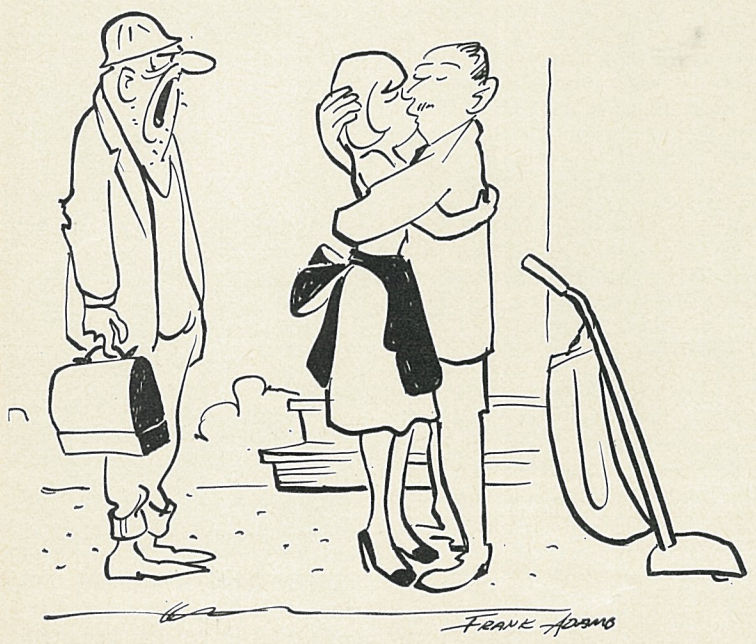
"And, as the reliability training points out so well, it is most important that we all adjust our own personal mental attitudes to meet the changing and critical demands we face now and will face in the future."

Mrs. Sunblade, who reports to L. G. Lawson of Dept. 48-01, is more aware than most people of the significance of high reliability. For the last 10 years her work has involved the compiling of reports on vendors' performance, and consequently, their reliability rating.

Helen Sunblade, Dept. 48-0 statistical technician.



MODIFIED—Canadair Ltd.'s CL-41A jet pilot trainer flew recently with new type engine. Prototype has been modified to accommodate General Electric J85 turbojet engine. Other changes include larger air brakes and cut-away fuselage tail-end to save weight. Royal Canadian Air Force will receive 190 of these aircraft.



"I suppose this means my TV dinner will be scorched again!"

Mobility Key Feature Of U.S. Army's Mauler

The U. S. Army has released first photographs of an engineering mockup of the fire unit for Mauler, the Army's newest guided missile system.

General Dynamics/Pomona is prime contractor for Mauler, designed to be a compact, highly mobile weapon.

Using solid rocket fuel, the Mauler missile will be radar guided and is designed to destroy high performance tactical aircraft that bomb, strafe or harass forward battle area positions. Mauler will also have a capability against short range ballistic missiles and rockets.

The U. S. Army Missile Command, an element of the U. S. Army Material Command, has overall charge of Mauler development. Mauler is one of several weapons selected for special high priority management by the Material Command. Col. Norman Dennis, Mauler project manager, and his staff are located at Redstone Arsenal, Ala.

The data digitizer for Mauler's communications network will be developed by General Dynamics / Electronics - Rochester. It will be completely transistorized for compactness, reliability and low power requirement, and will provide both voice and data for communication with other Mauler units and with a battery command post.

Each Mauler fire unit will be entirely contained on a self-propelled, fully tracked vehicle of standard design. The fire unit will be capable of delivering accurate fire while moving. This characteristic conforms to present Army policy to give a degree of mobility to all its new weapon systems so that an enemy is not presented with targets which are fixed or stationary.

The Mauler fire unit will be light enough to be carried by fixed-wing aircraft. Each fire unit contains its own power supply, target detection and tracking and electronic fire control equipment as well as a basic load of missiles.

The surface-to-air Mauler missiles will be prepackaged in lightweight cases that will serve as both shipping containers and launch tubes.

Mauler development work has been under way for more than two years. First contract was awarded General Dynamics on March 31, 1960. The Army announced in October, 1961, that firings of the solid fuel Mauler missile had begun at White Sands Missile Range, N. M.

GD/E Printer Is Sold To Propulsion Lab Operated For NASA

Sale of an S-C 3070 high-speed electronic printer to Jet Propulsion Laboratory, Pasadena, was announced last week by General Dynamics/Electronics — San Diego.

The laboratory, which is operated by the California Institute of Technology under contract to NASA, will use the S-C 3070 to print scientific data taken from high-speed computers working on various space projects.

The GD/Electronics high-speed printer is capable of printing 5,000 words a minute. To attain these speeds, the system presents one character at a time on the face of a CHARACTRON[R] Shaped-Beam Tube. From there the image is optically projected to a light sensitive paper.

Development of the image on the paper is accomplished by a unique electrostatic printing process.

Lt. Gen. Alness Sees Mauler

Lt. Gen. H. T. Alness, director of the Army's Weapons Systems Evaluation Group, visited General Dynamics/Pomona Nov. 28.

Purpose of General Alness' visit to Pomona was to review progress on Mauler, a mobile weapon system being developed for battlefield defense.

General Alness was accompanied to Pomona by Cols. P. L. Bates, F. C. Stanford, J. H. Swenson, W. L. Schreiber, R. O. Fricks and E. N. Rydalch, Lt. Cols. W. E. Holmes and Francis C. Kajencki, and Dr. L. D. Strom of Department of the Army Staff, Washington, D. C.

Also on the Pomona tour with General Alness were Col. B. B. Drummond and Jack Bayer of the Army's Los Angeles Procurement District, and Capts. L. R. Olsen and L. J. Mack of the U. S. Navy.

MANY STARS—During meeting of General Dynamics Anti-Submarine Warfare coordinating committee at San Diego recently, several ranking admirals in area were briefed. From left: RAdm. R. M. Reynolds, Bureau of Naval Weapons, Fleet Readiness, Pacific; RAdm. Marshall W. White, Commander Fleet Air, San Diego; C. F. Horne, president of GD/Pomona and GD/E and committee chairman; VAdm. Paul D. Stroop, Commander Naval Air Force, Pacific Fleet; J. H. Famme, president of GD/Convair; RAdm. Francis D. Boyle, Commander Cruiser-Destroyer Flotilla Seven.

Teen-Age Artist Reproduces Portrait of Alfred Stromberg

A teen-age artist is delving into history of General Dynamics Corporation for subject material for his art creations.

John Dawson, 14-year-old son of Ellie Dawson of GD/Electronics—San Diego, chose the co-founder of Stromberg-Carlson for his first portrait in charcoal.

His drawing reproduces in fine detail the illustration of Alfred Stromberg carried on page 28 of "Dynamic America," profusely illustrated volume of General Dynamics development.

The picture not only gave John the artist's satisfaction of a well-done performance, but earned him extra credit in his art class at Einstein Junior High School, Clairemont. His art teacher for three years, Sheila Wells, praises him as one of her most promising students.

As a result of his work in reproducing the likeness of Stromberg, he now has been asked to do a similar portrait of Albert Einstein to hang permanently in the school which bears the famous physicist's name.

TALENTED — Ellie Dawson of GD/Electronics at San Diego admires charcoal reproduction of Alfred Stromberg drawn by son, John.

Small Businesses Briefed On Changes in Aerospace

General Dynamics / Astronautics last week played host to approximately 600 representatives of supplier companies from across the nation at a special seminar.

Behind the affair was a desire to help small business firms keep abreast of changes in the aerospace industry, according to P. I. Harr, director of reliability control at Astronautics.

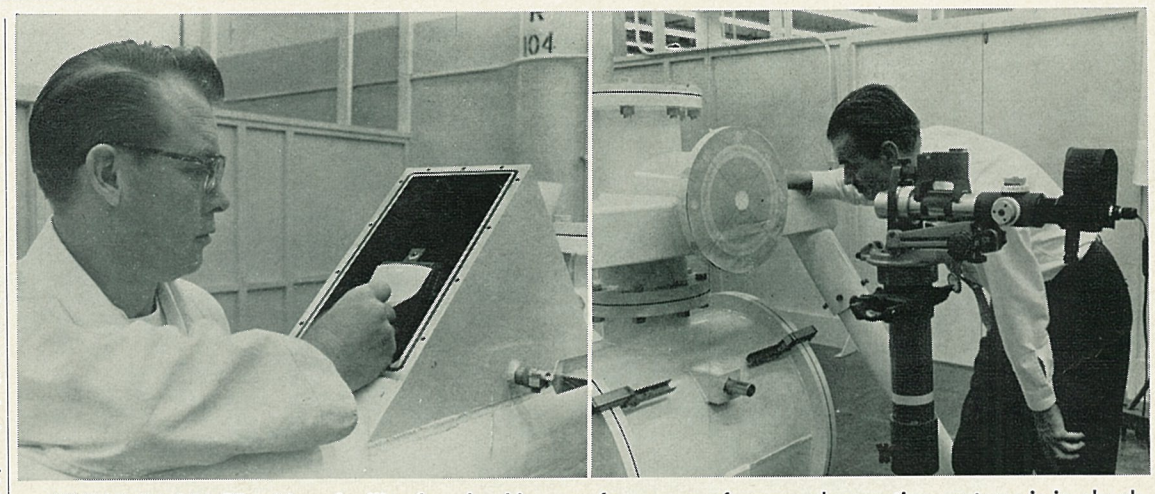
L. I. "Russ" Medlock, manager of quality control, handled arrangements.

Five individual sessions were set up with firms taking part, according to types of products.

Stressed was the necessity for supplier reliability and quality control.

Medlock informed participants that 65 per cent of the end product at Astronautics is manufactured by other firms. During 1961 more than $106 million was distributed directly to small businesses in addition to the millions that went indirectly to the concerns from major companies selling to Astro.

Astronautics personnel taking part included representatives from engineering, procurement, production engineering, and various reliability control functions.



"EYES" IN SPACE—New facility for checking performance of space observation systems is in checkout at San Diego. At right E. J. Barnett of GD/Astro applied manufacturing research aligns tube by projecting spot of light. At left, Wally Butts, technician, points out slit of light (target) at opposite end of instrument.

NASA Contract Authorizes Study Of Metals in Supersonic Flight

General Dynamics/Convair will be studying problems involving metals slated for use in a supersonic transport under a $61,000 contract announced last week.

The contract, for research into "creep" of metals, was awarded by the Office of Advanced Research and Technology, National Aeronautics and Space Administration, Washington, D. C.

Under the contract, GD/Convair structures engineers will design and prove out a test apparatus for determining the onset of creep, or elongation, of metals subjected to combinations of stress, high temperature and time. The apparatus will be equipped with extremely sensitive strain sensing devices and accommodate nine metal test specimens at a time.

Metals under consideration for supersonic transport application such as titanium, super alloys, and stainless steels, will undergo initial tests for 1,000 hours at temperatures between 600 and 700 degrees F. Different stresses will be applied to determine at what point creep begins.

THAT'S DADDY—Roy V. Woodle, assistant site manager—PALC I at Vandenberg AFB, has become "celebrity" since his photograph began appearing on magazines and television cigarette advertising. Wife, Sunny, and children look over one of ads, while books in foreground contain others. Tom Jacqua, Astro photo coordinator at Vandenberg, snapped shot.

Ad Agency Picks Young Engineer For Cigarette Testimonials

VANDENBERG AFB — Just for the record: Roy V. Woodle IS a young engineer in an important missile program position; he DOES work for General Dynamics/Astronautics here; he smokes Camel cigarettes.

Many questions along this line have been directed to Woodle since he began appearing in cigarette testimonials some 18 months ago. They have appeared in national publications with combined circulation of over 80 million and on television.

Since then his mail has included queries from would-be relatives of the same name, from hundreds of kids and many old friends he has not seen for years and some skeptics. He has been stopped many times on the street to verify his identity as "that guy we saw on television."

Woodle, an Astronautics assistant site manager—PALC 1, answers each letter he receives personally and with the help of Astro communication representative here, Emile Genest, sends interested youngsters Atlas missile pictures and information on space programs.

His "fame" was unsolicited and unexpected. A representative of an agency handling Camel advertisements came here looking for a subject. He selected Astronautics personnel because of cooperation he had received from officials in the past.

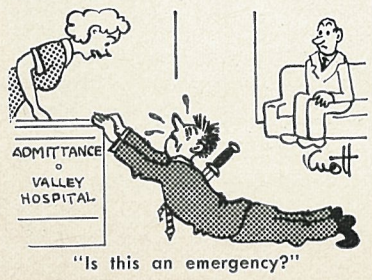
(Old timers will recall similar ads some years back featuring "Skeets" Coleman, first pilot of the "Pogo.")

The agency man insisted the subject had to be a Camel smoker who fit a lot of other requirements. He passed Woodle in a blockhouse area, saw a pack of Camels in his pocket and made him an offer.

Woodle inked a contract, then appeared on his own time before still and television cameras. He then became eligible for membership in the Screen Actors Guild.

Payments for his testimonials appear shortly after each is used.

The Woodle family enjoys the attention provoked by the ads and keeps files on all correspondence just for fun.



"Is this an emergency?"

Surveillance Systems For Space Checked

An advanced facility for checkout of telescopic systems for observing spacecraft, designed and built by General Dynamics/Astronautics optics research experts under an Air Force contract, currently is undergoing performance checkouts at San Diego.

It is designed specifically for evaluation of high resolution optical systems, said Romuald Anthony, research group engineer in charge of optics and infrared technology laboratories under V. A. Babits, manager of Astro applied research.

The chamber, located in the Plant 1 optics laboratory facility, will provide extreme temperature gradients anticipated in orbit. It will allow checkout of delicate electro-optical systems as if they were installed on a space vehicle and exposed to cyclical heat variation similar to that in various orbits, explained Loren C. Wilson, senior design engineer who has been responsible for development.

"We now will be able to evaluate systems in ultraviolet, visible, or infrared light without atmospheric effects and, in addition, simulate target motion," Wilson said.

Going into the chamber will be specimens of systems designed for either ground or air surveillance of space vehicles in orbit. These electro-optical systems would be looking at exhaust plumes of missiles during boost phase.

The new instrument is a vacuum test chamber with a collimator, a tube with a parabolic off-axis mirror at one end to produce a beam of parallel rays of light to provide a target (in form of slit of light) at the other end. This slit of light is, to all intents and purposes, an artificial source, simulating a target at infinite distance.

A scanning mirror simulates movement of the target. The scanner can be moved by hand for a slow scan in measuring size of the specimen or can be motor driven to evaluate dynamic characteristics of the electro-optic system.

Equivalent altitudes of 150,000 ft. are achieved in the vacuum chamber with reduced pressure eliminating both mirages produced by convection currents in the air and heat transfer by convection.

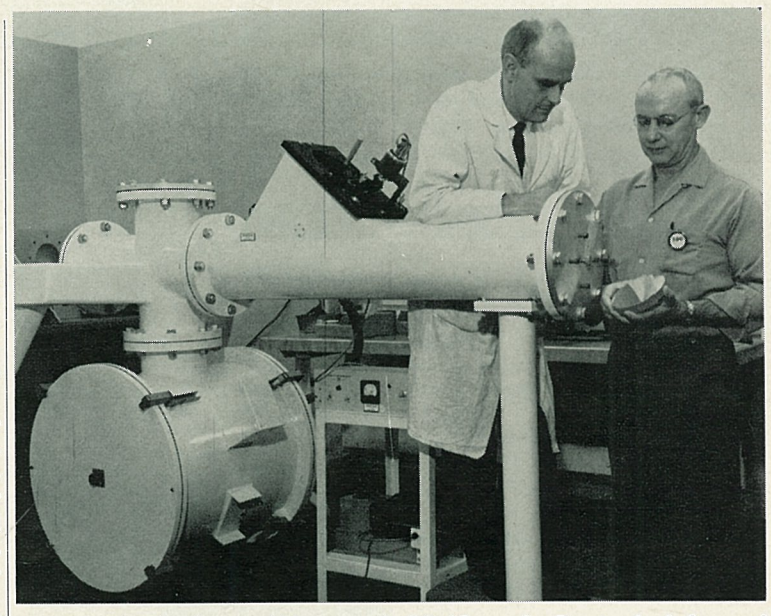
The chamber, containing the specimen, can be positioned at three different angles to examine changes which might occur in the optics from heat gradients and gravitational changes from plus 1 G to minus 1 G equivalent.

Provisions have been made, continued Wilson, for future installation of electrical heaters within the specimen chamber. These heaters could regulate temperatures from room temperature to 150 degrees Fahrenheit for evaluation of performance under changing themal conditions. Also, a cooling system using carbon dioxide, could bring temperature down to as low as minus 65 degrees F.

Data is recorded in graph form on an oscillograph and tests are monitored by an oscilloscope.

Also involved in design and initial checkout of the advanced facility, besides Wilson, is Swen Ahlgren of GD/Convair Dept. 6, who has been on loan to the optics research group during the last few months.

"We feel that this is an important step forward in expansion of our facilities for continuing effort in the aerospace field," stressed Anthony.



KEY PART—Swen Ahlgren of GD/Convair Dept. 6, left, and Loren Wilson of GD/Astro optics research examine parabolic off-axis mirror, heart of instrument to check refined optics systems.

Home For Xmas

GD/Astro Boy, 4, Injured by Car, Making Miraculous Recovery

Christmas is a time of hope, especially for the very young like Michael Callaway, 4.

Michael hopes to come home for Christmas, just as he did for Thanksgiving. He hopes there will be a tree, filled stockings, presents and a turkey, with a special drumstick just for him. Above all, he hopes to share his bounties with his parents, the Donald Callaways, and brother Jeffrey, 1.

Chances are, these things will come to pass, because Michael owes so much to hope, and faith and determination!

Early this year his father, a General Dynamics / Astronautics missile flight test mechanic, moved his family to Salina, Kan., where he went on special assignment from his Vandenberg AFB job.

Returning from a friend's, Michael was struck by a car. Unconscious, he was rushed to a hospital. A noted neuro-surgeon performed exploratory surgery. He said that Michael's small brain was damaged beyond medical help. He advised the Callaways to place Michael in a home where he could be cared for as an invalid. Other doctors concurred—there was little hope; only a miracle could help.

The Callaways refused to give up. They returned Michael to Santa Maria for physical therapy and searched for a medical specialist who would share their faith.

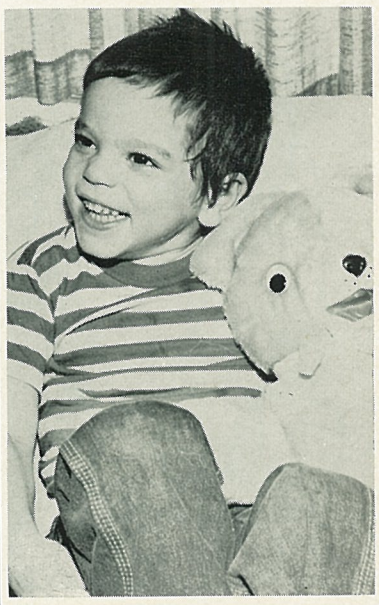
Although they located such a surgeon in Philadelphia, the trip east was judged too dangerous and Michael ultimately entered Children's Hospital in Los Angeles where he began to respond to treatment.

Long in a coma, he regained consciousness. He ate solid foods and regained partial use of his limbs. Each week brought more recovery. He is dressed every day, sits up constantly and even feeds himself. Improvement in use of his limbs is noticed almost daily.

Thanksgiving was a happy time because Michael came home to a special meal during a four-day stay with his family. He's back in Los Angeles now. But he's hoping to make it home again for Christmas.

So are a lot of other folks, both known and unknown to the Callaways. They are the ones who have contributed to help meet the many bills and travel expenses involved. For instance, the International Association of Machinists gave $300 for travel and incidentals. And Con-Trib-Club stands ready to help.

One and all, they hope it will be a very Merry Christmas for the Callaways, a family that has never lost hope.



RESPONDING — Michael Callaway, 4, once given up as lifelong invalid, is coming home for Christmas.

Dynamics Engineers Fill Elective Posts For Space Society

General Dynamics men swept top elective posts for the coming year in Dec. 5 elections of the Aerospace Electrical Society, San Diego Chapter.

T. W. Ochodnicky of GD/Convair succeeds E. F. Kotnik, GD/Convair engineer, as president. Ochodnicky, design group engineer in Dept. 6 engineering task administration, served as vice president during the last term.

T. W. Ochodnicky

Other new officers are E. R. Gauthier, GD/Astro, vice president; A. A. Fabbri of GD/Convair, secretary; G. C. French, GD/Astro, treasurer.

Gauthier is design group engineer in GD/Astro launch computers systems. Fabbri is electrical design engineer on the Little Joe II program at GD/Convair, while French is a design group engineer on Atlas weapons systems—electric.

New members of the executive board are two GD men, D. G. Moody of GD/Convair Dept. 6, assistant program manager on Little Joe II; and Don Richart of GD/Astro Dept. 373-5, launch computers systems.

Present membership of the society includes 200 representing San Diego area industries. Over half of these are connected with General Dynamics divisions—GD/Convair, GD/Astro, and GD/Electronics.

Scheduled meetings are held every other month to discuss new developments in the aerospace field and activities include an annual display, held the last five years in Balboa Park, as well as co-sponsorship with other technical groups of the yearly National Engineers week.

CLAMBAKE—Astro folk at Vandenberg AFB during November gathered 2,000 strong at Oceano for ARA-sponsored clambake. At right is part of crowd. Gene Sims, local ARA president, is shown left above with Don Weaver stoking chowder pots. Kibitzing are Clay Savery, John Couey, John Kern. Many of those attending braved cool surf to dig clams for meal's main course.

More Atlas Silo Installations Join SAC, Become Operational

WALKER AFB — The fifth series "F" or silo Atlas missile installation to be declared operational joined the deterrent force of the Strategic Air Command here Dec. 8.

Twelve Atlas launch complexes and their supporting facilities were turned over to the 6th Strategic Aerospace Wing, SAC, commanded by Col. Ernest C. Eddy. Crews of the 579th Strategic Missile Squadron commanded by Col. Edward M. Jacquet are now manning the sites.

Col. R. I. Barrowclough, SATAF commander here for Ballistic Systems Division, Air Force Space Command, acted for Maj. Gen. W. Austin Davis, BSC commander, in the ceremonies.

M. R. "Rex" Ubben was operations manager for General Dynamics/Astronautics forces who performed activities on the sites.

Already declared operational are similar sites at Schilling AFB, Kan., Lincoln AFB, Neb., Altus AFB, Okla., and Dyess AFB, Tex. Nearing completion are those being activated at Plattsburgh AFB, N. Y.

FINAL SESSION—Atlas series "F" launch and service facilities at Walker AFB were recently declared operational by SAC. Key men involved in activation are shown with Col. R. I. Barrowclough, SATAF commander, in final planning session. Seated are M. R. Ubben, GD/Astro operations manager, left, and John Provost, GE Company-Re-Entry Systems Department manager. Standing left to right are Frank Owens, Boeing-Catalytic manager; Ralph McElroy, ITT-Kellogg manager; Bill Miller, Rocketdyne manager; and E. S. Hewitt, manager for American Bosch-Arma Corp.

Aerospace Society Elects Four From General Dynamics

Ray Crowell of General Dynamics/Astronautics has been elected to office in the National Society of Aerospace Professionals and three other General Dynamics men to the board of directors.

Crowell is vice president for special activities for the coming year. Among new directors are Don Germeraad, formerly GD/Convair chief engineering test pilot now of GD/Astro; W. D. Reed, GD/Convair director of manufacturing; and J. L. Milliorn, GD/Astro program control.

The organization now numbers 600 members in 31 different plants and military installations throughout the United States. Main objective is to promote closer cooperation and understanding between varied professions engaged in the aerospace vehicle field.

It also recognizes outstanding contributions to the advancement of aerospace arts and sciences. Highlight of 1962 programs was presentation of the John J. Montgomery Award to the X-15 flight test program.

Dynamics Men Named To SD Citizen Group

Several General Dynamics employees have been named to a special 190-member citizens' committee appointed by Mayor Charles Dail to advise the City Council on San Diego's 25-year "General Plan."

Robert H. Biron, General Dynamics corporate vice president, and Cushman Dow, GD/Astro legal counsel, were named along with Astronautics' Carl G. Erickson and Dean H. McCoy.

Pomona Engineers To Present Papers

Three General Dynamics/Pomona engineers will present technical papers at various national professional meetings.

Julius Jonas, chief of operations research, will present a paper, "Impact of genetics research on bionics," at the Bionics Symposium, Wright - Patterson Air Force Base, Dayton, Ohio, March 19-21.

R. G. Shook (Dept. 6) has been invited to present a paper at the fourth annual Structures and Materials Conference of American Rocket Society, New York, N. Y., April 1-3. Title of Shook's paper is "A two-dimensional analysis of elastic thermal stress."

Inge Maudal (Dept. 6) will present a paper entitled "Stability analysis in a bi-stable multiloop system," at the 1963 Joint Automatic Control Conference, University of Minnesota, Minneapolis, Minn., in June.

Holiday Weekends Ahead For GD Folk

Long holiday weekends are in store for General Dynamics people at most divisions.

GD/Convair, GD/Electronics, GD/Astronautics, GD/Pomona divisions will be closed for four days over the next two weekends in observance of Christmas and New Year's.

Extra division year-end holidays this year will be Monday, Dec. 24, and the next Monday, Dec. 31, to give all employees, with the exception of essential maintenance and industrial security personnel, four-day weekends.

Con-Trib Helps 'Big Brother'

VANDENBERG AFB—Contributions totaling $1,500 from General Dynamics/Astronautics and its employees here recently kicked off Operation "Big Brother."

Con-Trib-Club gave $1,000 and Astronautics added $500 to this base-sponsored program which each year provides Christmas cheer for underprivileged families, especially children.

Tomorrow (Dec. 20) some 200 children will be brought to the base and feted at a special party, including, food, entertainment and gifts. Each family will also receive food for an extra-special Christmas.

This program was originated in 1959 and has grown each year.

BIG KICKOFF—Jim Koenig (Dept. 576-4) of Astro's Vandenberg AFB force, presents $1,000 donation from Con-Trib-Club to Maj. Gen. Joseph J. Preston, commander 1st StratAD, to initiate "Operation Big Brother." Looking on are Col. Hugh D. Young, project officer, and Troy Hill, chairman. Efforts help provide Christmas for underprivileged children and families. Astronautics added another $500.

Off-Site Base Flights Reduced; Cape, Vandenberg Links Continue

A "tradition" for thousands of General Dynamics/Astronautics employees whose jobs involved travel during activation of Atlas ICBM bases throughout the country came to an end early this month.

The last of many company or Air Force Ballistic Missile Division (now BSD) flights in support of base activation made its final round trip between San Diego and Plattsburgh, N. Y.

(Continuing, however, are flights to Cape Canaveral, Fla., and Vandenberg AFB, Calif.)

Designed to transport urgently needed base activation material and equipment, as well as personnel (on a space-available basis), the flights began in January, 1960. Originally they connected San Diego with Warren AFB, Wyo., and Offutt AFB, Neb.

By September, 1960, bi-weekly service to Forbes AFB (Topeka, Kan.) was added; then in early 1961 Schilling AFB (Salina, Kan.) joined the list with flights increasing in frequency to three times weekly.

Service to Fairchild AFB, Wash., via Convair 240 began in July, 1961, and travelers "got a break" with opening of a General Dynamics "Pilot Ready Room" and waiting room near Lindbergh Field's north flight gate two months later.

By last December, two Convair 240s were in the air. One linked Warren, Schilling and Lincoln AFBs, while the other flew a route between Walker AFB, N. M., Altus AFB, Okla., and Dyess AFB, Texas.

Then, in mid-June, a newly acquired DC-6B was placed in service, flying from San Diego to Omaha to Plattsburgh AFB, N. Y. A single Convair 240 remained on the mid-west run until September.

Last DC-6 flight to Plattsburgh left Lindbergh Field Dec. 1, returning the following day.

Langley Group Hears Pomona Engineers

Two General Dynamics/Pomona engineers presented papers during the Aerospace Industries Association Dynamics and Aeroelasticity Research Panel symposium at Langley Air Force Base, Va., earlier this month.

K. L. McIntyre presented a paper titled "Vibration and flutter characteristics of thin low aspect ratio wings."

"Wind tunnel measurement of transonic oscillatory lift of a typical control surface" was presented by W. H. Terrill.

'Package Budgeting' For Sales Outlined

"New Approach to Pentagon Sales," is discussed in a current article authored by M. R. Seldon, assistant to the director of reliability at GD/Astronautics.

Seldon, former GD / Convair manager of reliability, stresses program package budgeting to arrive at the minimum cost per mission, showing the Department of Defense that any proposal submitted will give the most weapon for the least cost.

The article is appearing in the December issue of Aerospace Management.

GD/E PARTY PLANNERS—Peggy Tracy, Waneta Helms, Elaine Harmon, Mary Ransom, Sue Klund check final arrangements for coming GD/Electronics Christmas affair, Dec. 23, on-site at Ocean-House. Today (Dec. 19) is deadline date for purchasing tickets to holiday dinner-dance.

Liquid Vitamin Type on Sale

A new type of liquid vitamin, suitable for all ages, is now available to General Dynamics people at San Diego locations at discount prices.

The new Vitamin Drops, with graduated dropper attached, sells at $2.25 a bottle, at least $1 less than most popular brands on the market. Each bottle contains 60 cc, a 100-day supply, and is particularly convenient for infants.

Other vitamin products, all supplied to General Dynamics by Hightower Laboratories, include Multi-Vitamins and Minerals in two different sizes. They can be purchased either in 60s, two-a-day type, at $1, or the Super brand, one-a-day kind, in bottles of 120 at $3. A week's supply called Super 7s, comes in a plastic container for 25 cents.

Candy-type vitamins for children are $1 for a bottle of 30. B-Complex sells at $1 for 100-day supply. High VC, a candy-type vitamin C tablet recommended for persons susceptible to colds, sells at $1.40 for 100.

All can be obtained at employee services outlets, cafeterias, vending machines throughout the plants, and at the industrial relations office of GD/Electronics Hancock St. facility.

Skate Club to Halt Operations Briefly

Activities of the joint ARA-CRA Ice Skating Club have been temporarily suspended pending new rink arrangements.

Commissioner Bud Davies has announced a group trip to Los Angeles for a professional hockey game planned for late January. Details of this trip will be confirmed later.

Coineers Will Hear Association Prexy

Coineers, ARA first shift coin club, will meet at 7:30 p.m. today (Dec. 19) in ARA Clubhouse.

Guest speaker is Leonel C. Panosh, past president of American Numismatic Association, California State Numismatic Association, and San Diego Numismatic Society. His remarks will concern "Winning prizes at exhibits."

A $1-maximum gift exchange will be held, with each package to be tagged as appropriate for a man, woman, or either.

A few hours later at 1:15 a.m., Dec. 20, members of the group's second shift unit will gather. The early morning meeting will feature a trading session and display contest.

Joe Garside is ARA commissioner.

Hoskins Bags .308 Deer Rifle In Gun Club Big Game Drawing

F. C. Hoskins of GD/Convair Dept. 171 walked away with top prize, a .308 deer rifle, at the annual Big Game Drawing held by CRA-ARA Gun Club Dec. 11.

Hunters entered more big game trophies in this drawing than any other year, said CRA Commissioner Jack Swank. Altogether, by drawing time, 165 entries had been turned in by General Dynamics people.

Everything from deer to javali was thrown in the hat. And, hunters roamed throughout the entire West to bag the big ones. Entries were shot in seven states — California, Utah, Colorado, Nevada, Oregon, New Mexico, and Wyoming.

Second prize, a pair of binoculars, went to C. E. Stone of GD/Astro Dept. 975-3.

Both Hoskins and Stone shot their game on hunting trips to Utah.

Other prizes, all hunting equipment, went to Thelma McColley, wife of William McColley of GD/Convair; Bruno Paolini, GD/Convair Dept. 133; Larry Roth, GD/Convair Dept. 140; Dwain D. Baldwin, GD/Astro Dept. 830-3; C. W. Greaser, GD/Astro Dept. 573-0; J. P. Luther of GD/Astro; Mrs. Jungemann, wife of W. C. Jungemann, GD/Astro; M. V. Sumrall, GD/Astro Dept. 130-1; Dale Young, GD/Convair Dept. 115; A. L. McNeely, GD/Electronics Dept. 34.

In other awards made the same night, Joe Butera, GD/Convair Dept. 102, received the yearly trophy award as the most improved shooter.

Top scorers in the Gun Club's December shoot also received prizes: Edna Gatterman, Roy Day, Larry Bloom, Dick Keehn, Larry Moore, Lois Smith, Dr. O. V. del Rosario, Don Cost, John Burk, D. Pope.

Next regular shoot at Gillespie Field Range will be Jan. 6.

Club Sponsoring Mgt. Seminars

"Management Seminars" under sponsorship of the GD/Astronautics Management Club are set to begin at two locations during January.

Eleven classes are planned, with nine to be held at Astronautics' Plant 71 and two at Plant 2. The latter will serve club members working in that location, plus Plant 1 and the Fordham Bldg.

This series is an outgrowth and continuation of the "Issues of Modern Management" series of classes which have proved extremely popular with members. Classes scheduled include "Principles of Managing," "Case Studies, Management Practices and Policy," and "Issues of Modern Management."

Club members interested in the program may contact George S. Hunter, ext. 4338-9, for information and application blanks.

Sail Club Organized, Two Events Slated

Nearly a score of sailing enthusiasts attended an organizational meeting of a proposed ARA Sailing Club early this month, and two subsequent events have been scheduled.

On Dec. 29 an instruction session will be held at Mission Bay's Santa Clara Point at 1 p.m. Several boats will be available, ranging in length from 8 to 16 feet. The event is open to all GD/Astro employees and dependents.

Club organization will be completed at a meeting at 7:30 p.m., Jan. 7, in ARA Clubhouse. An election of officers will be held, and a program of competition sailing may be set up.

Boat building is also on the list of club interests.

Master Class Won By Ralph Sanderlin

Firing .22 Camp Perry Police Course, Ralph Sanderlin edged all master class contenders in a Dec. 9 ARA Pistol Club match with a score of 292. In second place was Ronnie Legg with 290.

Harold Jensen scored 280 and Bill Jungk 273 in expert class, while Harry Black's 265 led a 260 by sharpshooter Don Hale. Bill Worthington fired 253 in marksman class.

Top scorers in a .45 Short National Match were Roland Schneider (274), Angrim Carlson (227), Les Vivian (227) and Worthington (213).

Radar Data Contract Awarded to GD/E

The Federal Aviation Agency has awarded a quarter-million dollar contract for a radar data distribution system to General Dynamics/Electronics-Rochester.

The system will be installed at the agency's National Aviation Facilities Experimental Center at Atlantic City, New Jersey, where the Systems Research and Development Service is working on development of improved air traffic control systems.

The radar data distribution system will embody data amplifying and switching equipment.

Cafeterias Prepare Christmas Dinners

Diners at all cafeterias at GD/Convair and GD/Astro can get in training for "turkey day" tomorrow (Thursday, Dec. 20) at the special Christmas dinner served annually by the Prophet Co.

A full turkey dinner with all the extras will be on the menu at $1 during the regular lunch hours at GD/Astro main plant, Plant 2, GD/Convair Plant 1 and Pacific Hwy. cafeterias.

Dinner includes roast turkey, dressing, whipped potatoes, giblet gravy, peas, salad, cranberries, roll and butter, pie, beverage.

'BIG BROTHERS' EARN CON-TRIB SUPPORT

General Dynamics/Astronautics Employees' Con-Trib-Club recently received a special award for its contributions to "Big Brothers of San Diego County."

D. A. Haslanger, Con-Trib-Club board of directors member, accepted the award which recognized a gift of $1,000. Through this gift, the organization was able to employ, for the first time, a special case worker.

Big Brothers provides guidance and examples to fatherless boys. For instance, four sons of three Astronautics women employees are currently being aided through the program.

Robert H. Biron, General Dynamics Corporation vice president, is a member of the local advisory committee of Big Brothers.

This agency is currently seeking men who will volunteer their time in helping fatherless boys feel wanted. A women's auxiliary was recently formed and also seeks volunteers. Direct queries to Big Brothers, BE-2-3320.

Withem Data Chief; Andress Joins Astro

G. O. Withem has been named chief of data processing at General Dynamics/Convair, succeeding A. E. Andress who has transferred to GD/Astronautics, President J. H. Famme announced.

Andress had been with the GD/Convair division for 26 years in various supervisory capacities.

In Withem's new appointment, effective Dec. 10, he reports to R. C. Hartwig, manager of systems and procedures and data processing.

A native of Indiana, Withem joined GD/Convair purchasing in 1941. He has served as tabulating supervisor in production, production control, accounting; was promoted to tabulating general supervisor in data processing in 1957; held the title of chief of data processing in 1961; and more recently has geen general supervisor in data systems and programs.

Christmas Trees Sell at Bargain

General Dynamics folk had better hurry if they intend to buy their Christmas trees at reduced rates.

The wide assortment of trees, offered all GD people in the San Diego area through the Prophet Co., are now on sale at CRA Clubhouse, across from GD/Convair Plant. 1.

Sale hours are from 10 a.m. to 9 p.m. the rest of this week, until Sunday night (Dec. 23).

Salvage Yards Also Will Have Holidays

Salvage yards at both GD/Astro and GD/Convair plants will be closed to employee sales the next two Saturdays. Regular alternating Saturday schedule will resume the first week in January. GD/Convair salvage yard at Plant 1 will be open from 8 a.m. until noon on Jan. 5; GD/Astro salvage yard at Kearny Mesa site will be open Jan. 12.

CRA, ARA Hosts At Bow Event

Rube Powell, five-time national archery champion, won the champion class and the turkey prize at the Dec. 9 IRC tourney, hosted by CRA and ARA Archery Clubs.

Powell's wife, Mary, doubled up on the turkeys, taking home one for topping the B class division. Cliff Dorr of GD/Convair Dept. 400 got his bird for standing high in Class A.

CRA Commissioner Al Phipps and Harry Ross of the CRA group were among finalists in the champ shoot-off.

Competition was extremely close in all divisions, said Phipps, with most winners decided by a single target.

Billy Egan, son of Bill Egan, GD/Convair Dept. 48, was trophy winner in the junior class and Lloyd Dickinson of GD/Convair 401 was lucky winner of the leather quiver given as door prize.

Next regular shoot of the CRA Archery Club will be Sunday (Jan. 13) at the Balboa Park Field Range.

The workshop in CRA Clubhouse, Pacific Hwy., now is open by appointment only on Tuesday evenings from 7 to 9 p.m. However, a regular schedule of instruction on equipment-making will start the first of the year.

Price Reductions For Golf Available

Convair and Astro Recreation Associations are offering golf fans at San Diego facilities an opportunity to save from $1 to $4 in admission charges to the San Diego PGA Open Golf Tournament slated Jan. 10 through 13 at Stardust Country Club.

"Season" tickets for admission to all tournament play, including the pro-amateur tourney on Jan. 9, will be available for $5 at all employee services outlets. Sales open Dec. 26 and close Jan. 8.

If purchased daily, cost of tournament tickets would total $9, or if purchased at San Diego golf courses, tickets for the entire five days would be $6.

Naval Reserve Pay Billets Available

Naval Reserve pay billets in ships activation maintenance and repair division 11-1 (L) for reserve officers below the rank of full lieutenant and rated enlisted men are now open.

Information on the unit is available through Don Stearns, ext. 4306, Howard Wexler, ext. 3655, or Fred Baker, ext. 722, Plant 2. All are Astronautics employees.

United Fund Given Holloman Monies

Otero County United Fund, New Mexico, has received all monies remaining in the Holloman AFB Con-Trib-Club charity fund, through approval of GD/Convair Employees' Con-Trib-Club Committee.

The United Fund will get $1,000 toward its current goal.

TOP HANDS—Test coordinators conference at GD/Astro recently saw impressive group of space pioneers gathered for discussions. Represented in group shown here are key personnel from Atlas Weapon System, SLV and Centaur projects off-site as well as main plant. In foreground are B. G. MacNabb (AFMTC) and T. L. Maloy, right.

DESERT FISHING—Anglers found paradise recently when members of ARA Fishing Club and families spent weekend at Salton Sea. At left, Stephanie Harwood, daughter of Dept. 032's R. A. Harwood, takes relaxed approach. Next from left is Jim Lawyer, dourly displaying his eight-pound corbina, largest fish caught. Holding prize strings are Harwood and Kathy Bunniger. Kathy's parents, Mr. and Mrs. Walter D. Bunniger, and brother Douglas, are at right. At far right, boat-borne set included John Maxwell, left, program chairman, and ARA Commissioner T. B. Field. Headquarters for trip was Salton City Marina.

Astro to Choose Queen To Reign During 1963

Time is at hand for naming a queen and four attendants to reign for the coming year over all Astronautics Recreation Association events.

Final selection of a queen and her court will come on March 20 at an ARA-sponsored fashion show.

First, a field of candidates must be nominated. In this every Astro employee can participate. The contest is open to all Astro employees, wives of employees, plus Air Force, NASA and associate contractors assigned permanently to Astro and the wives of the latter group. Each candidate must be sponsored by a single employee or an employee of one of the groups named. Candidates must agree to the contest rules and to participate in all events before and after the judging.

Application blanks and contest rules are now available at all employee services outlets. They must be submitted by Jan. 18.

On Jan. 30 all candidates will appear for preliminary judging at the ARA Clubhouse. Members of the ARA Employees' Council and AR Aiders from throughout the plant will serve as judges. Fifteen finalists will be selected.

Finalists will act as models during the March 30 fashion show. At that time a panel of outside judges will select a queen, plus four attendants.

Singles Keg Classic Will Start Jan. 26 At Valley Bowlero

Members of General Dynamics/Astronautics Management Club will use averages as of Dec. 31 to establish handicaps in the club's second annual Singles Bowling Classic.

Preliminary rounds will be bowled starting Jan. 26 at Mission Valley Bowlero, Parkway and Clairemont Bowls, and Lemon Grove Bowlero. Finals for the top 40 finishers will be rolled Feb. 9 and 10 at El Cajon Bowl and Lindo Lanes, Santee.

Entries will be accepted through Jan. 25 by Forest Erwin, Dept. 480-0. Entry fee is $5. Cash prizes plus trophies will go to winners at a free buffet luncheon for bowlers at Lindo Lanes after the final round.

Explorers Plan Trip To Colorado River

ARA Explorers Club will conduct a field trip to the Picacho area on the California side of Colorado River over the long New Year's weekend.

Additional information on the club, which meets on the third Wednesday of each month in ARA Clubhouse, is available from Paul DuPre, ext. 4449.

On Dec. 17, club members gathered for a holiday party at Lazy "D" Ranch near Rancho Santa Fe.

Shop League to Open Basketball Season

GD/Astronautics Recreation Association will open its 1963 season of intramural (shop league) basketball in mid-January.

An organizational meeting for captains or managers of teams wishing to participate in the program is slated for 5:15 p.m., Dec. 21 in ARA Clubhouse. Entries close Dec. 28.

Additional information is available from Rich John ext. 1111.

ARA Golf Club Reorganized

Two golf events have been announced for January under auspices of the newly-reorganized ARA Golf Club.

First of these, designed to introduce the new club, will be a putting contest on the GD/Astro putting green from 9 a.m. until noon, Jan. 6.

This will be followed by a tournament at Carleton Oaks Jan. 19-20, with starting times available from ARA Headquarters, ext. 1111, on Jan. 5.

Purpose of the new Golf Club is to provide more uniform methods of establishing and maintaining golf handicaps, and more equitable control of eligibility to participate for tournament prizes through club membership.

All GD/Astro employees and their dependents will be eligible for membership in the club, which will conduct all ARA-sanctioned golf events. A membership and handicap card will be issued to each member for a nominal annual fee. A portion of the fee will be used for maintenance and monthly updating of club handicaps.

Dick Tobias is ARA commissioner.

Stamp Enthusiasts Earn Two Awards

Two members of ARA Stamp Club received awards at Tampex 1962 stamp exhibition at Tampa, Fla., last month.

Libby N. (Mrs. Abe) Hurlich won an award for "Music on Stamps," which was included in a court of honor featuring topical exhibits which had previously won first prizes in other shows.

Fred Lawson was honored for "Interim Stamps of Israel" in the show's senior class, foreign section.

Two Clubs Merge For Christmas Fete

ARA Hi-Fi/Music Club and Astro Players, ARA drama group, will join forces Dec. 21 for a Christmas party in ARA Clubhouse.

The free event starts at 8 p.m. and will include dancing and door prize drawings with six turkeys at stake. Refreshments will be served.

Sports & Recreation

Frank Robinson Winner Of All-Events Bowling

Frank Robinson was named all-events champion of ARA's annual bowling tournament rolled Dec. 1, 2, 8 and 9 at Clairemont Bowl. His 652, 668, 621 series and 90-pin handicap gave him 2,031.

Genger Koger's 1,697 took honors in women's all-events competition.

A total of 53 teams, plus 300 singles and 150 doubles entries participated in the tourney.

Leading men's team was King Pins captained by Ray Gibbons. Bowlers Alan Gensemer, John Marshall, Bill Neal and Ernest Frost rolled a 3,089 series.

Leading mixed team was Keglers with Captain Irene Dopkowski, Art Bunge, Jim Wallace, Mickey Harvey and Lora Lacy.

Norman Dahl and Harry Van Buren won men's doubles with 1,298 under 693 handicap, while Shirley Thomas teamed with Ray Fiedler to lead mixed doubles with 1,216. Men's and women's singles were won by Joe Ragusa and Joan Offner with 678 and 604 handicaps respectively.

Sycamore Canyon captured the department team trophy with bowlers Les Craig, Richard Evilsizer, Owen and Ron Hasbrooke.

High scores made other bowlers eligible for trophies. These included Norman McCree (256 scratch), Carl Shinkle (272 handicap), Eddie Minniti (549 scratch series), Leila Jennings (615 handicap), and Laura Innis (216 scratch).

Best Ball 58 Scores Win Partnerships Golf at Circle 'R'

GD/Astro golfers vied at Circle "R" early this month in an ARA-sponsored best ball tournament.

Two teams tied for first place with net scores of 58. Team members were C. C. Pope and J. R. Shuter, Paul Williams and Mark Pruitt.

Jim Lothringer and Phil Corbett copped second place with 59.

Tied for third with 60s were teams of Frank Hockenberger and Frank White, Bill Kenney and Jack Zinn, while Chuck Cearley and M. Quackenbush, H. Eskensen and C. Grant came in fourth with 61.

Teams of Bob Stevens and Joe Harrison, Huston Walling and Duane Scott, O. Bowing and Earl Hasbroke shot 62s.

In a Calcutta driving contest Gene Velasquez and Roger Draeger led with 63, Lloyd Norris and Jim Clark scored 65, and teams of Bill Pearce and George Putness, Harry Richards and Jack Ross shot 66s.

Longest putt (206 inches) was sunk on the 18th hole by Bill Kurch, while longest drives were made by Velasquez and Ross.

Driving closest to the pin on No. 14 were Shuter, and Duane Scott was closest on hole 17.

Atlas Display Plan Revived

Work to prepare an Atlas missile for display in the ARA Area adjacent to General Dynamics/Astronautics main plant is now in progress.

Plans for the permanent missile display were announced more than a year ago, but difficulties were experienced in acquiring a suitable "used" Atlas for the purpose.

Work on the display is being handled by Management Club in cooperation with ARA. Bill Shine, Dept. 373, and Bill Valentine, Dept. 756, are co-chairmen of the Management Club committee sparking the effort.

The erection site, the southwest corner of the ARA Area, has been graded and a concrete foundation poured. The missile will be lined with a supporting structure, and is expected to be in place by early February.

As a final touch, Management Club will provide a suitable plaque for mounting on the display. This will explain the missile, its major features and capabilities.

ARCHAEOLOGISTS STUDYING MEXICO

First in a series of three programs on Mexico will be featured at a meeting of ARA Archaeology Club at 7:30 p.m., Dec. 26 in ARA Clubhouse.

The series as a whole represents a travelogue of Mexico, and a study of the Mayan people. Included is one motion picture, and several speakers who will illustrate their remarks with slides.

Speaker at the December session is John Stearns, vice president of the San Diego chapter, American Institute of Archaeology. His illustrated talk will cover geographic distribution, history and culture of the Mayans and their cities. His remarks are based on numerous exploratory trips through Southern Mexico and Guatemala.

All General Dynamics employees, their families and friends have been invited to attend these meetings.

ARA Calendar

(GD/Astronautics Recreation Association has some 40 activities in operation for employees. For information call ARA Headquarters, ext. 1111.)

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ARCHAEOLOGY — First of three programs on Mexico, 7:30 p.m., Dec. 26, ARA Clubhouse. Speaker is John Stearns.

ASTRO LENS — Meeting 7:30 p.m., Jan. 6, Photo Arts Bldg., Balboa Park.

BRIDGE CLUB — Holiday party, Rudy's Hearthside, 6:30 p.m., Dec. 30. Beginners' classes start next month. Register with Art Saastad, ext. 3012.

COIN CLUBS — First shift meets at 7:30 p.m. today (Dec. 19), ARA Clubhouse. Speaker is Leonel C. Panosh. Second shift unit meets at 1:15 a.m., Dec. 20 for trading session and display contest.

GOLF — Putting contest, GD/Astro green, 9 a.m.-noon, Jan. 6. Tournament Jan. 19, 20 at Carleton Oaks. Starting times available on Jan. 5 from ext. 1111.

SAILING — Instruction at Santa Clara Point, 1 p.m., Dec. 29. Meeting 7:30 p.m., Jan. 7 in ARA Clubhouse.

TEEN CLUB — Dance 7:30-11 p.m., Jan. 5, ARA Clubhouse. One guest per member. Sports clothes appropriate. Live music.

Holiday Bridge Party Planned

ARA Bridge Club will hold a holiday party at Rudy's Hearthside Restaurant, La Jolla, at 6:30 p.m., Dec. 30. Bridge play will follow dinner and several prizes will be awarded.

Early in 1963, the club will begin a series of bridge lessons. Interested employees and dependents have been urged to register soon, as class capacity is limited. ARA Commissioner Art Saastad will accept reservations at ext. 3012.

The club has a library of books on bridge, which can be borrowed by those contacting G. M. Alford, ext. 1516.

Several honors have been received by club members. Mrs. Lucille Donan and John Christy placed first in one section of play at the Phoenix National tournament, while Paul Lewis took first place in a San Diego unit monthly master point event.

Lens Club Will Hear La Jolla Speaker

Astro Lens, ARA camera club, will open 1963 proceedings with a meeting at 7:30 p.m., Jan. 6 in Photo Arts Bldg., Balboa Park.

Lillian Fayman of La Jolla will be guest speaker.

ARA Commissioner Ken Rinker has asked each member to bring five color slides to this meeting. A club committee will later select 20 of these as the club's contribution to a show called "Tops in Color."

Show is an annual event sponsored by Southern California Association of Camera Clubs, with which Astro Lens is affiliated.

At 15,000mph, Projectile Simulates Outer Space Collision

What happens when a meteoroid strikes a space vehicle?

Little information has been available. Because of difficulty in duplicating the high speeds and tiny particles involved under controlled laboratory conditions, space scientists have relied on theory for their predictions.

Now through efforts of General Dynamics/Astronautics materials research (Dept. 592-1) under Abe Hurlich, chief, some of the answers have come to light.

In a rugged area of San Diego County (Calif.) known as Green Farm Test Site, using relatively simple equipment, a team headed by Dr. Fred Rolsten has run test after test over a period of more than two years.

Essentially, these tests have consisted of firing projectiles of known size, weight and shape at very high velocities into materials in use (or considered for use) in space vehicles.

Result is a great volume of information compiled from experiments under scientifically controlled conditions — identical projectile sizes, shapes, mass and velocity; identical target materials; and similar environments.

Also achieved were extremely high projectile speeds (to nearly 15,000 mph) with very small particles.

Tests are run either in open air, or in a special vacuum chamber at the Green Farm Site, where the group shares an area leased by General Atomic Division near GD/Astro's Sycamore Canyon Facility.

For an open air test, a material sample—the target plate—is fixed in a frame. A small projectile, usually of less than .1-gram in weight, is loaded in a simple firing apparatus filled with plastic explosive.

The explosive is detonated by remote electrical firing of a dynamite cap, and drives the projectile at "point blank" range into the target plate.

Cameras mounted on oscilloscopes monitor firings and record projectile velocity information.

Working with Rolsten are H. H. Hunt and J. N. Wellnitz. Another veteran with such programs handles explosive materials and sets up the "shots." He is Harry Anderson, who previously worked on similar GD/Convair rain-erosion research in support of the F-102/106 programs.

The arrangements for a test in the vacuum chamber are similar to those for open air firing. Here, however, projectile impact takes place in a controlled environment with the vacuum approaching that of altitudes 500 miles above the earth (.000001-mm of Mercury).

Within the chamber, the group has fired projectiles weighing only .001-gram, and expect to fire tiny "bullets" of only one-tenth that weight in the near future.

Another of their major accomplishments is the successful firing of projectiles of .002-grams in weight at velocities of 25,000-feet-per-second!

"This test series provided information in an area on which we previously only theorized," said Rolsten.

Working with Dr. Roman Smith of General Atomic, the team conducted a series of tests using radioactive projectiles.

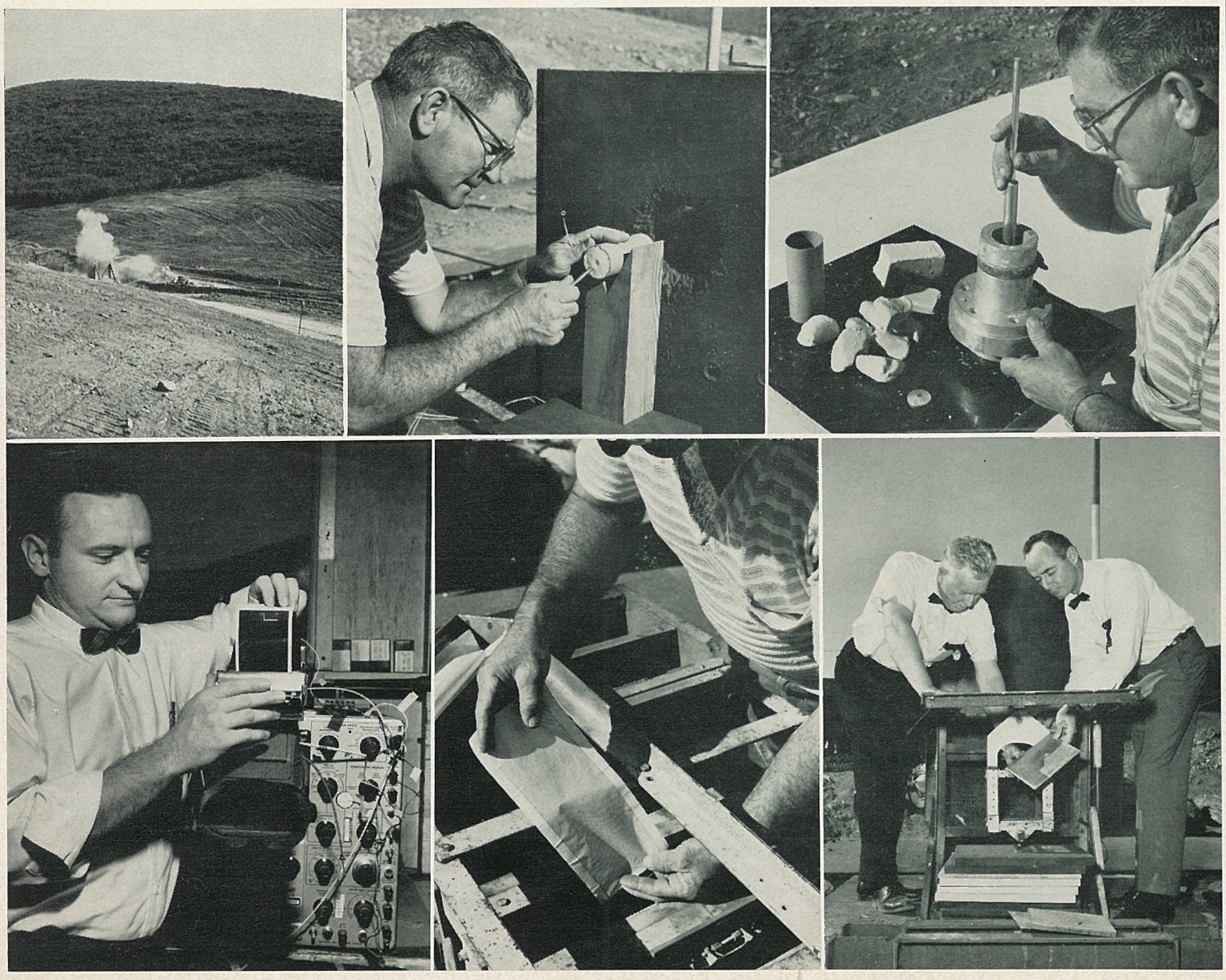
Resulting data permit them to predict accurately what portion of a projectile remains in a "crater"—the "pockmark" at the point of impact—after it strikes a surface at high velocity. (This is a surprising 5 to 7 per cent of the original projectile mass. The remainder "splashes out" or vaporizes.)

This information can also be used to predict the quantity of a meteorite remaining in a crater formed in the earth.

Still other experiments have permitted unusually accurate prediction of crater depth and diameter, based on projectile size and velocity of impact.

Besides the value of their work as "pure science," materials research has contributed directly to GD/Astronautics' Centaur and other space vehicle projects. Expense of some of their studies has been borne by GD/Astro, while others have been carried out under contract to governmental agencies.

Now the group looks forward to additional apparatus with which to expand their theoretical and experimental work. Due for installation by the end of the month is new photo X-ray, framing and streak camera equipment to be used in conjunction with the vacuum chamber facility.



TEST FIRING—At top left controlled explosion goes off in GD/Astro material test series at San Diego. At top right, "gunsmith" Harry Anderson packs plastic explosive into dye to form "gun." At top center he carefully inserts dynamite cap into explosive, encased in cardboard tube. When fired, tube does not blow up like firecracker, but propels tiny projectile through charred hole to target. At lower left Jerry Wellnitz removes finished Polaroid photo from camera. Lines chart projectile's velocity. Lower center: projectile passes through three precisely spaced paper barriers which give oscillograph reading of velocity. Lower right: H. H. Hunt and Dr. Fred Rolsten remove target plate after firing.

Centaur Components Enter 'Space' Via Ultra-High-Vacuum Chamber

First Centaur test specimens went into the newly-modified GD/Astronautics advanced space chamber at San Diego during the last few weeks to "take a ride" into outer space.

The components, sun detectors for the Centaur launch vehicle, were first to undergo combined environmental checkouts in the large ultra-high-vacuum chamber at Plant 1 since its recent modification (**General Dynamics NEWS**, Sept. 26, 1962).

The just-concluded test program used the chamber's expanded capabilities of vibration to simulate forces during propulsion, or takeoff, and the high-vacuum conditions duplicating outer space environment.

As an Astro reliability requirement, test engineers in Astro's dynamics lab put the small electronic components through every condition they will encounter within the Centaur vehicle in coming space exploration flights.

First, temperature and humidity conditions were set up to duplicate a hot, sticky semi-tropical climate surrounding the probable launch site. Temperatures ranged from 115 degrees F. and 95 to 100 per cent humidity to a low of 40 degrees F. with the same humidity.

Then, preparations began for the "ride."

Specimens were sprayed with cold gaseous nitrogen for the same treatment they might get during fueling operations.

The newly-installed vibrator went into action to simulate blast-off forces. At the same time, vacuum pumps were started to lower pressure as components were "shot out" beyond the earth's atmosphere.

Cryogenic plates surrounding the specimens were filled with liquid nitrogen as the cold nothingness of outer space was "reached." The plates are painted black on the inside, duplicating blackness of space, to see how components will perform while losing their own heat as it is radiated into the cold of outer space.

Testing went from cold to hot while heat lamps were turned on to broil components in singeing heat from the sun without the atmosphere's protecting cushion.

They were kept at maximum altitude (above 350,000 ft.) for prolonged periods before another shaking by the vibration exciter, simulating final engine operation, brought them back to earth.

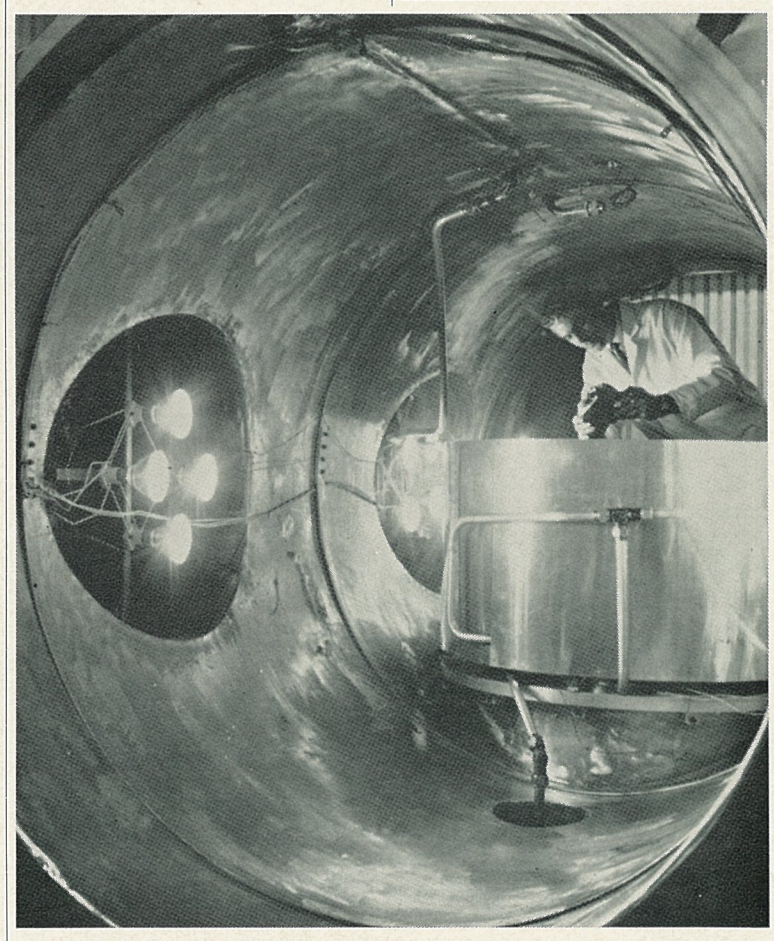
Initial tests within the space chamber were proclaimed satisfactory on all counts, said test engineer J. Ned Shaw, responsible for this particular program under Howard Bard, assistant test lab group engineer. Also assigned to the project were Dick Green and Ray Williams, dynamics test engineers.

Other Centaur component testing will follow as the program progresses, said M. C. Brady, in charge of the Dept. 500 dynamics laboratories.

GD/NEWS' First Issue In '63 To Be Jan. 9

General Dynamics NEWS' first issue in 1963 will appear Wednesday, Jan. 9, instead of Jan. 2, which the normal every-other-week schedule calls for. The week is being slipped because of the interruption of holidays with the regular production sequence.

The **NEWS** will continue biweekly thereafter, as usual.



BRIGHT SHINE—Dick Green, GD/Astro systems dynamics test engineer, holds one of first components to go into advanced space chamber at Plant 1, San Diego. Interior of chamber must be kept spotless, free of even fingerprints which could effect simulation of outer space conditions.